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**BEFORE THE BOARD OF OIL, GAS AND MINING  
DEPARTMENT OF NATURAL RESOURCES  
STATE OF UTAH**

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UTAH CHAPTER OF THE SIERRA CLUB,  
et al.,

Petitioners,

Docket No. 2009-019  
Cause No. C/025/0005

DIVISION OF OIL, GAS AND MINING,

Respondent, and

ALTON COAL DEVELOPMENT, LLC, and  
KANE COUNTY, UTAH,

Intervenors-Respondents.

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**PETITIONERS' POST-HEARING BRIEF ON GEOLOGY AND HYDROLOGY ISSUES  
TOGETHER WITH PETITIONERS' RESPONSE TO THE BOARD  
CONCERNING THE EFFECT OF AIR QUALITY PERMIT PROCEEDINGS**

## **Introduction**

Pursuant to the Board's briefing order, as amended, Utah Chapter of the Sierra Club ("Sierra Club"), Southern Utah Wilderness Alliance ("SUWA"), Natural Resources Defense Council ("NRDC"), and National Park Conservation Association ("NPCA") (collectively, "Petitioners") file this post-hearing brief on geology and hydrology issues, with an addendum responding to the Board's request for a statement of position with respect to proceedings on the air quality permit application pertinent to the coal mine at issue. In numerous respects, the application of Alton Coal Development, LLC ("ACD") for permit to conduct surface coal mining and reclamation operations near Alton, Utah, at a facility to be known as "the Coal Hollow Mine" failed to present complete or accurate information as the Utah coal rules require. For its part, the Utah Division of Oil, Gas and Mining ("the Division") erred in approving ACD's incomplete and inaccurate mining application and in attempting to perform a cumulative hydrologic impact assessment ("CHIA") without defining, for the Coal Hollow Mine, what constitutes material damage to the hydrologic balance outside the permit area.

In an earlier brief, Petitioners have addressed the Division's unlawful approval of ACD's permit application despite its deficiencies with respect to air quality and cultural and historic resource information. This separate brief addresses the Division's errors (1) in approving the permit application despite ACD's incomplete and inaccurate geologic and hydrologic information and analysis and (2) in performing the CHIA for the Coal Hollow Mine. Specifically, Petitioners argue that:

- \* ACD's hydrologic monitoring plans are fatally incomplete because they do not describe how monitoring data may be used to determine the impacts of the Coal Hollow Mine on the hydrologic balance;

- \* the Division unlawfully approved ACD's permit application despite the absence of remedial measures for elevated concentrations of total dissolved solids;
- \* the Division's failure to establish material damage criteria prevented the agency from performing the required analysis to support its CHIA finding;
- \* the Division erred in deciding that Sink Valley is not an alluvial valley floor and exempting ACD from satisfying the permitting requirements for conducting operations in or adjacent to such an area;
- \* the Division unlawfully approved the Coal Hollow Mine permit application despite the absence of monitoring stations on Lower Robinson Creek that are capable of identifying the effect of the mine on the hydrologic balance;
- \* the Division unlawfully approved the Coal Hollow Mine permit application despite the absence of complete baseline hydrologic data on ground water resources; and
- \* ACD's permit application is unlawfully incomplete because it fails to investigate whether an aquifer exists in the Dakota Formation that may be adversely impacted by mining.

This brief begins with a statement of general statutory and regulatory background.

Petitioners then address the issues in the order stated above, presenting the pertinent facts and legal argument on an issue-by-issue basis, followed by their response to the Board's inquiry on air quality proceedings. Finally, Petitioners address the appropriate remedy for the Division's errors.

### **Statutory and Regulatory Background**

This proceeding arises under Utah's approved state regulatory program for implementing the Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. §§ 1200-1328 ("SMCRA").

Congress specifically enacted SMCRA to:

- \* establish a nationwide program to protect society and the environment from the adverse effects of surface coal mining operations;
- \* assure that surface mining operations are not conducted where reclamation as required by [SMCRA] is not feasible;

- \* assure that appropriate procedures are provided for the public participation in the development, revision, and enforcement of regulations, standards, reclamation plans, or programs established by the Secretary or any State under [SMCRA]; and
- \* wherever necessary, exercise the full reach of Federal constitutional powers to insure the protection of the public interest through effective control of surface coal mining operations.

30 U.S.C. § 1202(a), (c), (i) and (m). To accomplish its stated purposes, Congress required the Secretary of the Interior (“the Secretary”), acting through the Office of Surface Mining Reclamation and Enforcement (“OSM”), to, among other things, administer the programs for controlling surface coal mining operations which are required by SMCRA (including the process of approving and overseeing state regulatory programs such as Utah’s) and publish and promulgate such rules and regulations as may be necessary to carry out SMCRA’s purposes and provisions. 30 U.S.C. § 1211(c)(1) and (2).

At the heart of each of SMCRA’s regulatory programs is the requirement that “no person shall engage in or carry out on lands within a State any surface coal mining operations unless such person has first obtained a permit issued by such State pursuant to an approved State program or by the Secretary pursuant to a Federal program.” 30 U.S.C. § 1260(a); *see also* 30 C.F.R. § 750.11(a) (making the permit requirement applicable to surface coal mining operations on Indian lands); Utah Admin. Code § R645-300-112.400. To ensure consideration of all pertinent factors prior to commencement of surface coal mining operations, Congress crafted a detailed set of permit application requirements. 30 U.S.C. §§ 1257-1259. Congress underscored its insistence that coal operators meticulously comply with these detailed requirements by imposing a mandatory duty on each regulatory authority to **withhold** approval of any permit application that does not accurately

and completely fulfill **every** permit application requirement. 30 U.S.C. § 1260(b)(1). SMCRA's legislative history explains that:

Experience has shown that without a thorough and comprehensive data base presented with the permit application, and absent analysis and review by **both** the agency **and by other affected parties** based upon adequate data, [the judgment of regulators] has often traditionally reflected the economic interest in expanding a State's mining industry. Valid environmental factors tend to receive short shrift. To meet this problem, the bill delineates in detail the type of information required in permit applications in section 507 and 508 and the criteria for assessing the merits of the application in section 510.

H.R. Rep. 218, 95<sup>th</sup> Cong. 1<sup>st</sup> Sess. 91 (1977) (emphasis supplied); *see also* S. Rep. No. 128, 95<sup>th</sup> Cong. 1<sup>st</sup> Sess. 75 (1977) (stating that the information requirement now codified at 30 U.S.C. § 1257(b) "is a key element of the operator's affirmative demonstration that the environmental protection provisions of the Act can be met").

Congress developed SMCRA's detailed permit information and analysis requirements in part to ensure that interested members of public have an opportunity to effectively participate in the implementation and enforcement of the statute. Both the House and Senate Reports acknowledge that:

The success or failure of a national coal surface mining regulation program will depend, to a significant extent, on the role played by citizens in the regulatory process . . . While citizen participation is not, and cannot be, a substitute for governmental authority, **citizen involvement in all phases of the regulatory scheme will help insure that the decisions and actions of the regulatory authority are grounded upon complete and full information.**

*Id.* at 88-89; S. Rep. No. 128 at 59 (emphasis supplied).

The Secretary's regulations and the approved Utah state regulatory program implement SMCRA's core provisions by specifying in detail the various types of information and analysis that each applicant for a new or significantly revised permit must present in an application. 30 C.F.R.

Parts 779, 780, and 784; Utah Admin. Code §§ R645-301-100 through R645-301-890.400. True to the federal statutory mandate, the Secretary's regulations and the approved Utah state regulatory program expressly require regulators to withhold approval of any permit application that does not contain the required information or analyses. 30 C.F.R. § 773.15(a); Utah Admin. Code § R-645-300-133.100. In addition, the Secretary's regulations and the approved Utah state regulatory program provide extensive public participation opportunities during the permitting process, *see* 30 C.F.R. § 773.6, Utah Admin. Code §§ R-645-120 through -124.330, buttressed by the right of adversely affected citizens to pursue administrative and judicial review, 30 C.F.R. Part 775; Utah Admin. Code §§ R645-300-200 through -223.

Congress placed special emphasis on protection of water resources as part of SMCRA's permitting process. The House Report accompanying the bill that became SMCRA noted that:

H.R. 2 requires that the operator make a determination of the probable hydrologic consequences of the proposed mining and reclamation operations. **It is intended that the data assembled with this assessment be included in the application** so that the regulatory authority, utilizing this and other information available, can assess the probable cumulative impacts of all anticipated mining in the area upon the hydrology and adjust its actions and recommendations accordingly.

H.R. Rep. No. 218 at 113 (emphasis supplied). The House report goes on to make clear that:

It is intended that the data collection and resulting analysis **take place before** and continue throughout the mining and reclamation process, and be conducted **in sufficient detail so that accurate assessments of the impact of mining on the hydrologic setting of the area may be determined.**

*Id.* at 120 (emphasis supplied).

## Argument and Authorities

### I.

#### **ACD's Hydrologic Monitoring Plans Are Fatally Incomplete Because They Do Not Describe How Monitoring Data May Be Used to Determine the Impacts of the Coal Hollow Mine on the Hydrologic Balance**

The record shows that neither of ACD's hydrologic monitoring plans includes a description of how monitoring data may be used to determine the impacts of the Coal Hollow Mine on the hydrologic balance. This deficiency renders ACD's mining application fatally incomplete: the Utah coal rules expressly state that each ground-water and surface water monitoring plan "will describe how these data may be used to determine the impacts of the operation upon the hydrologic balance." Utah Admin. Code § R645-301-731.211 (pertinent requirement with respect to ground water monitoring plans), -731.222 (pertinent requirement with respect to surface water monitoring plans); *see also* 30 C.F.R. §§ 780.21(i)(1) and (j)(2), 784.14(h)(1) and (i)(2) (parallel federal requirements). In the absence of descriptions of the sort that the regulations require each permit application to contain, the Division's decision to approve ACD's permit application for the Coal Hollow Mine blatantly violated the mandate that:

No permit application or application for a permit change will be approved unless the application affirmatively demonstrates and the Division finds, in writing, on the basis of information set forth in the application or from information otherwise available that is documented in the approval, the following:

The application is complete and accurate and the applicant has complied with all the requirements of the State Program . . . .

Utah Admin. Code § R645-300-133 and 133.100.

The testimony of the Division's witness on this issue confirms that ACD's hydrologic monitoring plans do not contain the required descriptions. Hearing Transcript at 462-463, 464. On

examination by ACD's counsel, the Division's witness agreed that neither he nor other Division hydrologists felt a need for descriptions of how the monitoring data may be used. Hearing Transcript at 477. Nonetheless, on re-cross by Petitioners' counsel, the witness again acknowledged that the rules require that each permit application include the descriptions at issue. Hearing Transcript at 482-83.

Petitioners have found only one ruling concerning the need to include in hydrologic monitoring plans descriptions of how the data may be used to determine the effect of a coal mine on the hydrologic balance: the decision of Interior Administrative Law Judge Harvey Sweitzer in *Save Our Cumberland Mountains v. Office of Surface Mining Reclamation & Enforcement et al.*, No. 97-3-PR (Office of Hearings and Appeals July 30, 1998) ("*SOCM*").<sup>1</sup> That case involved a permit application that contained only a cursory description of how the monitoring data might be used, unlike the situation here where the Division concedes that there is no express description whatsoever. The permit application in *SOCM* brusquely asserted that the placement of monitoring stations "WILL ALLOW FOR COMPARISON OF MONITORING DATA TO PRE-MINING DATA TO ASSIST IN THE DETERMINATION IF ANY POTENTIAL IMPACTS HAVE OCCURRED DUE TO THE MINING OPERATION." *Id.* at 29.

Judge Sweitzer held that such descriptions "are so vague and general that they cannot form the basis for reasonable evaluation and criticism of the monitoring plans." *Id.* He concluded that "[t]hey are therefore inadequate."

Judge Sweitzer went on to hold that "[a]t a minimum, the descriptions should explain, as witnesses did at the hearing, what each monitoring site is designed to monitor either by itself or by

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<sup>1</sup> Petitioners attach a copy of the *SOCM* decision as Exhibit 1 to this brief.

comparison to or in conjunction with other monitoring sites.” *Id.* He added that “[s]ome detail should also be given as to how the chosen parameters ‘may’ be used to determine if the mine plan is working or whether there is a potential problem,” and that “[s]ome illumination of the mechanisms which ‘may’ be used to make such determinations is also warranted, such as indicating whether statistical analysis, trend analysis, or certain parameter levels will be used.” *Id.* Judge Sweitzer pointed out that “[w]ithout such information, the public or [regulatory] personnel unfamiliar with the mining operation would find it difficult to determine if the monitoring plan is adequate or if a potential problem or violation exists or to offer constructive information or suggestions for improvement of the plan.” *Id.*

The notion that the Division may rely upon unspoken agreement with a permit application about how monitoring data may be used – which seems to be the crux of ACD’s position on the issue – is flatly inconsistent with Judge Sweitzer’s decision in *SOCM*, because approving permits based on implicit understandings frustrates public participation, which Congress and the Utah legislature deemed vital to effective implementation of surface mining law. Just as importantly, however, ACD’s notion runs afoul of the requirement of the Utah coal rules that the Division’s pertinent findings for permit approval rest solely “on the basis of information **set forth in the application or** from information otherwise available that is **documented in the approval.**” Utah Admin. Code § R645-300-133 (emphasis supplied). Even if there were an agreement between ACD and the Division’s hydrologists concerning how hydrologic monitoring data may be used to determine the effect of the Coal Hollow Mine on the hydrologic balance, the Division had a legal duty either to compel ACD to set forth the agreement in its permit application or else to document the agreement in the Division’s approval documents. The Division did neither.

Petitioners will not belabor this issue further. ACD's permit application manifestly lacked descriptions of how hydrologic monitoring data may be used. In the absence of such descriptions, the Division had no authority to approve ACD's permit application. The Utah coal rules require reversal of the Division's decision and remand for formulation and inclusion of sufficient descriptions to satisfy the governing regulation.

## II.

### **The Division Unlawfully Approved ACD's Permit Application Despite the Absence of Remedial Measures for Elevated Concentrations of Total Dissolved Solids**

In addition to descriptions of how monitoring data may be used to determine the effect of the Coal Hollow Mine on the hydrologic balance, ACD's permit application also lacked a statement of remedial measures that the company will take in the event that it encounters elevated concentrations of total dissolved solids, one of the potential adverse hydrologic consequences identified in ACD's probable hydrologic consequences determination, or "PHC." The Utah coal rules require that every permit application contain an operation plan which, among other things:

will **specifically** address any potential adverse hydrologic consequences identified in the PHC determination prepared under R645- 301-728 and will include preventative and **remedial measures**.

Utah Admin. Code § R645-301-731 (emphases supplied). Because ACD's operation plan does not even mention, much less "specifically address," TDS and does not contain a statement of remedial measures that ACD will undertake if the company encounters elevated TDS concentrations in mine discharges or affected water resources, the Division's approval of ACD's permit application for the Coal Hollow Mine blatantly violated the mandate that:

No permit application or application for a permit change will be approved unless the application affirmatively demonstrates and the Division finds, in writing, on the basis

of information set forth in the application or from information otherwise available that is documented in the approval, the following:

The application is complete and accurate and the applicant has complied with all the requirements of the State Program . . . .

Utah Admin. Code § R645-300-133 and 133.100.

The testimony of the Division's witness on this issue confirms that ACD's operation plan does not state remedial measures to address elevated TDS concentrations, should ACD encounter them. Hearing Transcript at 458. Although on redirect the witness opined that general language in the operation plan suggested remedial measures that ACD might use to respond to elevated TDS concentrations, he ultimately conceded that all he had found or been shown in this regard were preventative measures with respect to elevated TDS concentrations, not remedial measures. Hearing Transcript at 473-74.

Although Judge Sweitzer's decision in *SOCM* did not involve a deficient operation plan, the reasons he noted for requiring an express rather than implied statement of how monitoring data may be used apply with equal force here:

Without such information, the public or [regulatory] personnel unfamiliar with the mining operation would find it difficult to determine if the [operation] plan is adequate or if a potential problem or violation exists or to offer constructive information or suggestions for improvement of the plan.

*SOCM* at 29. For this reason, and also because the Utah coal rules demand that the Division ensure that the basis for permit approval is documented either in the permit application or in the Division's approval papers, Utah Admin. Code § R645-300-133, ACD is plainly wrong in arguing that understandings between the Division and a permit applicant about the use of monitoring data or the remedial measures to address elevated TDS concentrations need not be written down.

As with descriptions of how monitoring data may be used, ACD's operation plan manifestly lacked any statement of remedial measures to be employed against elevated TDS concentrations. In the absence of such a statement, the Division had no authority to approve ACD's permit application. The Utah coal rules require reversal of the Division's decision and remand for formulation of an operation plan sufficient to meet the requirement of the governing regulation.

### III.

#### **The Division's Failure to Establish Material Damage Criteria Prevented the Agency From Performing the Required Analysis to Support Its CHIA Finding**

The Division's cumulative hydrologic impact assessment ("CHIA") for the Coal Hollow mine unlawfully fails to establish at least one material damage criterion for each water quantity or quality characteristic that the Division requires ACD to monitor during the operations and reclamation periods. More fundamentally, the CHIA fails to establish **any** material damage criterion for determining whether the Coal Hollow Mine has been designed to prevent material damage to the hydrologic balance outside the permit area. The failure to establish material damage criteria prevented the agency from rationally analyzing whether the Coal Hollow mine has been designed to prevent material damage outside the permit area. The lack of a rational supporting analysis rendered the Division's *pro forma* finding on material damage to the hydrologic balance arbitrary, capricious, and otherwise inconsistent with law.

At stake here is the Division's duty to withhold approval of ACD's permit application unless and until the Division "has made an assessment of the probable cumulative impacts of all anticipated coal mining and reclamation operations on the hydrologic balance in the cumulative impact area and has determined that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area." Utah Admin. Code § R645-300-133.400. Quite

obviously, the agency cannot rationally determine whether a proposed mining operation has been designed to prevent material damage to the hydrologic balance unless and until it first establishes criteria separating “material damage” (which a proposed mine must be designed to prevent outside the permit area) from lesser damage that would be an acceptable consequence of approved mining operations. *See* Utah Admin. Code § R645-301-731.511.1 (requiring every Utah coal mine to “[m]inimize disturbance to the hydrologic balance on the permit area, prevent material damage outside the permit area and otherwise eliminate public hazards resulting from coal mining and reclamation operations”).

In the basis and purpose statement for 30 C.F.R. §§ 780.21(g) and 784.14(f), the federal regulations that govern performance of CHIAs by state and federal regulatory authorities, OSM emphasized that “the regulatory authorities should establish criteria to measure material damage for purposes of the CHIAs.” 48 Fed. Reg. 43,973 col. 1 (Sep. 26, 1983). Soon thereafter, in guidelines that the Division acknowledges as authoritative, OSM stated that:

Material damage to the hydrologic balance may be characterized by changes to the quality or quantity of surface water or ground water as measured by changes in particular hydrologic parameters or conditions. In terms of the foregoing discussion of hydrologic balance, this means that material damage occurs when postmining outputs exceed **defined limits**, or when the change in output which occurs in going from the premining relationship (e.g., the state of hydrologic balance) to the postmining relationship exceeds **some prescribed amount**. . . These limits are referred to in this guidance document as the Material Damage Criteria.

Exhibit D-26: *Draft Guidelines for Preparation of a Cumulative Hydrologic Impact Assessment (CHIA)*, Office of Surface Mining Reclamation and Enforcement (December 1985) (“*OSM Guidelines*”) at III-7 (emphasis supplied); *see* Transcript at 571 (Division’s witness acknowledging the *OSM Guidelines* as authoritative). The guidelines go on to explain the vital role that material damage criteria play in the CHIA process:

Section 507(b)(11) of [SMCRA, 30 U.S.C. § 1257(b)(11),] requires a determination of probable hydrologic consequences caused by mining and reclamation operations, both on and off the minesite. However, the CHIA process for permit approval or denial under Section 510(b)(3) of [SMCRA, 30 U.S.C. § 1260(b)(3),] requires that these impacts be evaluated to determine whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. Therefore, the regulatory authority **must have and must include** in the assessment report the criteria by which the potential for material damage can be assessed. These criteria are needed for comparison with the quantitatively or qualitatively predicted impacts of mining . . . .

*Id.* at IV-22 (emphasis supplied).

These interpretations of SMCRA and its implementing national regulations by the Secretary of the Interior, acting through OSM, necessarily govern interpretation of state regulatory programs that implement SMCRA, including the approved state regulatory program for Utah. *Brown v. Red River Coal Co.*, 373 S.E.2d 609, 610, 7 Va. App. 331 (Va. App. 1988) (“Federal legislative history and interpretation must control construction of the state law in these circumstances as a matter of simple federal preemption. A common tenet of modern federalism holds that in substantive areas preempted by the federal government, such as coal surface mine reclamation, states may not enact laws that are less restrictive than or inconsistent with the federal law”) (citation omitted); *see also* Syl. pt. 5, *Schultz v. Consolidation Coal Co.*, 197 W.Va. 375, 475 S.E.2d 467 (1996) (“A state regulation enacted pursuant to the West Virginia Surface Coal Mining and Reclamation Act, West Virginia Code §§ 22A-3-1 to -40 (1993), [now West Virginia Code §§ 22-3-1 to -32 (1994 & Supp.1995) ], must be read in a manner consistent with federal regulations enacted in accordance with the Surface Mining Control and Reclamation Act, 30 United States Code Annotated §§ 1201 to -1328 (1986)”; Syl. pt. 1, *Canestraro v. Faerber*, 179 W. Va. 793, 374 S.E.2d 319 (1988) (“When a provision of the West Virginia Surface Coal Mining and Reclamation Act . . . is

inconsistent with federal requirements in the Surface Mining Control and Reclamation Act, 30 U.S.C. § 1201 *et seq.*, the state act must be read in a way consistent with the federal act.”).

The Division’s CHIA for the Coal Hollow Mine fails to establish even one material damage criterion. Instead, the CHIA identifies two “indicator parameters” which the Division apparently will look to as signals of the need to determine whether material damage has occurred after mining begins. Exhibit D-23: CHIA at 39; *see also OSM Guidelines* at II-5 (explaining that “indicator parameters” are aspects of the local hydrologic system that may be adversely affected by specific mining operations at issue). These indicator parameters are (1) low-flow discharge rate and (2) total dissolved solids (“TDS”) concentration. CHIA at 39. Even as the Division identified low-flow discharge rate as one of its “indicator parameters,” the agency cast serious doubt on the validity of its selection in pointing out that:

because flow in many streams is intermittent, material damage due to loss of flow is very unlikely, and the intermittent nature of the flow will also make any such loss almost impossible to detect.

*Id.* at 40. Establishing as an “indicator parameter” a component of the hydrologic balance for which any change is “almost impossible to detect” so grievously undermines the entire CHIA process as to warrant reversal of the result on that ground alone.

Moreover, the Division’s remarkable assertion that “because flow in many streams is intermittent, material damage due to loss of flow is very unlikely,” is completely unsupported in the record or the CHIA literature. For ecological systems, wildlife, agriculture, and the like, reducing an already limited but vital resource can and often does have a catastrophic impact. Failing to recognize that reality is most certainly arbitrary and capricious. At a minimum, the selection of a material damage “flag” that is “almost impossible to detect” and that, in the Division’s view, “is

very unlikely” to actually signal material damage to the hydrologic balance demonstrates that the Division did not take its CHIA obligation seriously.

The CHIA’s overarching flaw, however, is the failure to set “defined limits” or “some prescribed amount” of hydrologic change for each indicator parameter in order to separate “material damage” from the lesser damage that would be an acceptable consequence of approved mining operations. CHIA at 40; *see also OSM Guidelines* at II-5 (explaining that after the regulatory authority identifies appropriate indicator parameters, the CHIA process requires the agency to further define “for the indicator parameters **the threshold values** beyond which material damage is likely to occur”), III-7 (defining “Material Damage Criteria” as “defined limits” or “some prescribed amount” of hydrologic change” beyond which materials damage is likely to occur). Rather than define material damage in terms of specific limits or a prescribed amount of change in low-flow discharge rate, seasonal flow from springs, or TDS concentration in surface or ground water **prior** to the commencement of mining operations, as the CHIA process plainly demands, the Division in this case unlawfully delayed establishment of actual material damage criteria until **after** mining is underway and the hydrologic balance has already deteriorated to a significant extent as the result of a loss of 20% or more in low-flow discharge rate or seasonal flow from springs, or a persistent increase of TDS concentration to 3,000 mg/L or more in surface or ground water. CHIA at 39-41; Transcript at 559-60 (describing each value mentioned in the CHIA as a “flag” that would “prompt” the Division to “evaluate for material damage”), 603-04 (testimony that the Division has not yet determined, and would conduct future deliberations on, the TDS concentration level that would cause the agency to require ACD to take preventative or remedial measures), 655-56 (Petitioners’ expert testimony explaining why the CHIA’s stated 3,000 milligram per liter

concentration “flag” for TDS is not a material damage criterion). Only then, under the Division’s plan, would the agency begin to determine what actually constitutes material damage to the hydrologic balance. *Id.* Necessarily, the material damage criteria ultimately chosen for each parameter would be set at some currently undefined level beyond those used to trigger the evaluation process.

The Division’s failure to establish even one material damage criterion prevented the agency from properly performing the CHIA for the Coal Hollow Mine.<sup>2</sup> The absence of material damage criteria made it impossible for the Division to compare defined standards for what would constitute material damage to the hydrologic balance outside the permit area to “the quantitatively or qualitatively predicted impacts of mining.” *See OSM Guidelines* at IV-22. That comparison – of specific, clearly defined material damage criteria on the one hand with the predicted impacts of mining on the other – is the core task of the CHIA process. *OSM Guidance* at IV-31-33. Indeed, such a comparison is an essential exercise in rationally determining whether a proposed mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area. *Id.* The Division’s failure to establish even one material damage criterion belies the agency’s argument that it conducted a reasoned analysis of whether the Coal Hollow Mine is designed to

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<sup>2</sup> Perhaps just as importantly, the Division’s failure to establish material damage criteria compelled ACD to attempt to design its mining operations to prevent material damage outside the permit area without knowing what conditions constitute material damage. As a result, whenever the Division does establish material damage criteria during the operations or reclamation phases (as its hydrologist testifies it may), ACD may discover that the conditions it designed the Coal Hollow Mine to prevent are not the conditions that actually constitute material damage to the hydrologic balance. Thus, failure to establish material damage criteria **prior** to permit approval potentially compromises the permit applicant’s role in protecting the hydrologic balance at the same time it prevents proper performance of the CHIA.

prevent material damage: the Division could not make a reasoned finding on the issue because it failed to define the conditions that constitute material damage in the first place.

Examination of the CHIA's assessment of probable material damage confirms the fatal nature of the Division's failure to establish material damage criteria. As mentioned earlier and as emphasized in the *OSM Guidelines*, this crucial step in the CHIA process is the point at which the regulatory authority analyzes all of the components of the process and decides whether the proposed mine has been designed to prevent material damage to the hydrologic balance outside the permit area. The agency's assessment is supposed to turn on a comparison of material damage criteria to the predicted effects of the proposed mine on the hydrologic balance.

Despite acknowledging that "[u]ncontrolled runoff from the disturbed lands and spoil pile could increase sediment concentrations and alter the distribution and concentration of dissolved solids in the receiving streams," CHIA at 44, the Division's assessment never quantifies the potential change in TDS concentration nor does the assessment compare that potential change with a material damage criterion for TDS (because, of course, the Division did not actually establish one). As a result, the Division's subsequent finding that the Coal Hollow Mine has been designed to prevent material damage to the hydrologic balance outside the permit area is, at least with respect to TDS concentration, unsupported by the sort of analysis that the CHIA process demands.

Worse yet, the Division's assessment of probable material damage to water quantity does not even mention the "indicator parameter" for low-flow discharge rate, much less analyze the likely effect of the Coal Hollow Mine on low-flow discharge rate and then compare that effect to a material damage criterion for that parameter (which, again, the Division failed to establish). CHIA at 44-45. Thus, the Division's failure to establish a material damage criterion for low-flow discharge rate

predictably resulted in failure to perform the essential analysis necessary to support a finding that the Coal Hollow Mine has been designed to prevent material damage to the hydrologic balance outside the permit area.

In its pre-hearing brief on hydrology issues, ACD cites the decision in *Ohio River Valley Environmental Coalition, Inc. v. Callaghan*, 133 F.Supp.2d 442 (S.D.W.Va. 2001) (“*Callaghan*”), as support for the notion that a CHIA need not establish quantitative material damage limits because the precise nature of any criteria that might be employed to detect material damage limits lies within the discretion of the agency. To begin with, *Callaghan* says no such thing. The district court there observed that the CHIA in question incorporated “the National Pollutant Discharge Elimination System (NPDES) limits which will apply to the discharge points and the water quality limits for the receiving st[r]eam.” *Id.* at 445. The court also noted that the “uses” encompassed among the material damage criteria set in that case “means the legislatively designated water quality standards associated with the categorical uses described in the state rules.” *Id.*

The dispute in *Callaghan* was not over a failure to establish **any** material damage criteria, as in this case, or a failure to include all water quality standards among designated material damage criteria. Instead, *Callaghan* involved a claim that the West Virginia regulatory authority had erred by adding to the designation of effluent limits and water quality standards the vague requirement that “the quality or quantity of groundwater and surface water is sufficiently altered from the baseline and intended use for the water is significantly impacted.” *Id.* Whatever the validity of such a requirement, there is nothing comparable to it in the Division’s CHIA for the Coal Hollow Mine. As explained at length in earlier paragraphs, the Division in this case established **no** material damage criteria whatsoever. Although regulatory authorities unquestionably have some discretion in

formulating material damage criteria, they do not have discretion to avoid doing so altogether or to postpone the task until after the CHIA finding is announced and mining begins. To accord that sort of discretion would enable regulatory authorities to eviscerate the CHIA requirement completely by failing to analyze cumulative impact **before** issuing permits, thus making a mockery of Congress's primary mechanism for protecting the Nation's waters from damage due to coal mining.<sup>3</sup>

Four years after the *Callaghan* decision, the same federal district court in West Virginia struck down OSM's approval of state program amendments that would have formally authorized

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<sup>3</sup> ACD's reliance on *Callaghan* is misplaced for another reason. That decision involved only a request for preliminary injunction, and thus it may not be read as the court's final resolution of any of the merits issues in the case. *University of Texas v. Camenisch*, 451 U.S. 300, 305 (1981) ("the findings of fact and conclusions of law made by a court granting a preliminary injunction are not binding at trial on the merits"); *see also* 11A C. Wright, A. Miller & M. Kane, *Federal Practice and Procedure* § 2950. Indeed, the *Callaghan* court was careful to note the tentative nature of the legal analysis that underlies decisions to grant or deny preliminary injunctions. *Callaghan*, 133 F.Supp.2d at 444. Accordingly, the district concluded only that "it is **unlikely** that Plaintiffs will prevail on the merits **as to this particular CHIA . . .**" *Id.* at 448 (emphasis supplied). The district court emphasized "the narrow scope of its review," conceded that "Plaintiffs posit reasoned arguments that, in several respects, the CHIA fails to adequately consider certain factors," and ultimately warned that "this decision is driven **in great measure** by the fact that this operation in relatively small and in an hydrologically remote area." *Id.* at 449 (emphasis supplied). Eventually, the district court dismissed the claims at issue in *Callaghan* for lack of jurisdiction in the wake of the decision in *Bragg v. West Virginia Coal Assn.*, 248 F.3d 275 (4<sup>th</sup> Cir. 2001), without ever issuing a ruling on the merits.

Even if this Board did not have the benefit of the same district court's subsequent interpretation of West Virginia's "cumulative impact" definition, which Petitioners discuss in subsequent text, it would be a grave mistake to apply the tentative, fact-driven interpretation of that definition announced in *Callaghan* to this case, where the CHIA in question is markedly different from the one at issue in *Callaghan*. The CHIA at issue in *Callaghan* expressly adopted applicable West Virginia water quality standards as the "threshold limits" for the proposed operation **without** qualifying those standards by requiring that their violation be "chronic" in order to constitute "material damage to the hydrologic balance outside the permit area." For this reason alone, ACD is wrong in implying that the district court in *Callaghan* approved the same sort of CHIA that the Division performed for the Coal Hollow Mine. The critical issue in this case simply was not present in *Callaghan*.

West Virginia to perform CHIA's on the discretionary basis approved in *Callaghan*. *Ohio Valley Environmental Coalition, Inc. v. Norton*, No. 3:04-CV-00084 (S.D.W.Va. Sep. 30, 2005) affirmed *sub nom. Ohio River Valley Environmental Coalition, Inc. v. Kempthorne*, 473 F.3d 94 (4<sup>th</sup> Cir. 2006) ("*Norton*").<sup>4</sup> In *Norton* the same district court that decided *Callaghan* announced a very different interpretation of the federal and West Virginia CHIA regulations – this time based on a full briefing on the merits. *Norton* at 6-8.

The *Norton* decision expressly construes the West Virginia's CHIA definition of "cumulative impact" to require each CHIA to establish "**specific**", "**numeric**", "**predetermined**" thresholds and ranges which define and measure material damage. *Id.* at 7. *Norton* further interprets the "cumulative impact" definition to require inclusion of applicable West Virginia water quality standards among the designated thresholds and ranges. *Id.* Most importantly, *Norton* overturned OSM's approval of the challenged program amendments because, without cogent explanation, they substituted a "narrative" standard which the district court found likely to increase subjectivity and unguided discretion on the part of CHIA writers. *Id.* at 7-8.

Accordingly, *Callaghan* can provide no support for the Division's performance of the CHIA in this case, not only because the CHIA in *Callaghan* was substantively different from the one at issue here, but also because *Callaghan* rests on a necessarily hurried interpretation of West Virginia's CHIA regulations which the same court ultimately abandoned upon mature consideration.

ACD's reliance on OSM's 1983 basis and purpose statement for the federal CHIA regulations that Utah's regulations implement is also misguided. The portion of that statement that ACD quotes – which Petitioners have also quoted earlier in this brief – "agrees that the regulatory

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<sup>4</sup> Petitioners attach a copy of *Norton* as Exhibit 2 to this brief.

authorities should establish criteria to measure material damage for the purposes of the CHIA.” 48 Fed. Reg. at 43,973. This interpretation of the controlling federal regulation provides no support for the Division’s failure here to establish **any** material damage criteria. To be sure, OSM elected not to establish fixed criteria for measuring material damage, except for the effluent limitations and water quality standards with which a mine must comply pursuant to 30 C.F.R. §§ 816.42 and 817.42 or one of their state program counterparts. But OSM’s decision not to establish fixed material damage criteria does not support the Division’s decision to establish none at all for the Coal Hollow Mine. To the contrary, the OSM preamble clearly supports Petitioners’ argument that the establishment of at least one site-specific material damage criterion is necessary to proper performance of the CHIA for each mine.

**B. The Division Unlawfully Failed to Establish At Least One Material Damage Criterion for Each Parameter of Concern That the Agency Identified in Its CHIA.**

Even if the levels of reduction in low-flow discharge rate and TDS concentration mentioned in the Division’s CHIA did constitute material damage criteria – which they most certainly do not – the Division had no authority or practical reason to limit material damage criteria for the Coal Hollow Mine to only some but not all of the parameters of concern that the Division itself identified in the CHIA and included in the hydrologic monitoring plans for the mine’s operations and reclamation phases. Although the CHIA process enables and encourages the Division to focus its analysis on those facets of the hydrologic system which are likely to affect designated uses of water available from that system, the process ultimately requires the Division to examine each of the concerns that the Division itself deems significant to maintaining the hydrologic balance of the area in question. *OSM Guidance* at II-1. Once the Division has identified the hydrologic concerns

implicated by a proposed mining operation, the agency must develop parameters for each concern and then develop and list material damage criteria for **each** parameter identified. *Id.* at IV-25. This is so because the duty to perform a CHIA is not an empty formality. The CHIA is meant to ascertain whether a proposed mining operation has been designed to prevent **all** forms of material damage to the hydrologic balance outside the permit area, not just the damage that might be attributable to one or two out of many hydrologic concerns that the regulatory authority has identified.

In this case the Division itself enumerated a variety of hydrologic concerns raised by ACD's permit application:

- \* interception of ground water by mining operations, CHIA at 32-33, 42;
- \* diminution of down-gradient ground water resources, CHIA at 33;
- \* draining of up-gradient ground water resources, CHIA at 33-34, 45, 46;
- \* changes in stream flow rates, CHIA at 37, 39-40;
- \* increased TDS concentration in both surface and ground water, CHIA at 37-38, 40, 41, 44;
- \* increased total suspended solids concentration, CHIA at 38, 39, 44; and
- \* changes in seasonal flow from springs, CHIA at 41.

In addition, the Division required ACD to monitor surface and ground water during the operations and reclamation phases with respect to the following parameters, each of which is necessarily a parameter of concern because the Division has compelled ACD to expend time and money to collect information on potential changes:

pH	Magnesium (dissolved)
Specific Conductivity	Manganese (total and dissolved)
Dissolved Oxygen (surface water only)	Potassium (dissolved)
Temperature	Sodium (dissolved)
Total Dissolved Solids	Sulfate
Total Suspended Solids (surface water only)	Oil and grease (surface water only)
Bicarbonate	Cations
Carbonate	Anions
Calcium (dissolved)	Cation/Anion Balance
Chloride	Selenium (surface water only)
Iron (total and dissolved)	

Exhibit D-1: MRP, Chapter VII, Tables 7-6A and 7-7A; *Id.* at File 0001.pdf, p. 17 of 234 (Attachment to permit listing Special Conditions).

Given the Division's own concerns with these varied aspects of the hydrologic balance, the agency had a duty to determine whether ACD had designed its mine to prevent material damage attributable to each of these factors. To make the necessary determinations, the Division had to first set a material damage criterion for each factor and then predict whether ACD's mine would likely cause or contribute to an exceedance of each material damage criterion. *OSM Guidance Document* at IV-22.

However one may characterize the "flags" that the Division developed for low-flow discharge rate, seasonal spring flow rate, and TDS concentration in surface and ground water, the Division unquestionably failed to establish material damage criteria for any of the other parameters of obvious concern with respect to the Coal Hollow Mine. It is especially surprising that the Division did not establish material damage criteria for the interception of ground water by mining operations, given the Division's assessment that "[d]ewatering related to mining has the greatest potential for impacting ground-water resources in the CIA." CHIA at 43. It was no less an error,

however, to fail to establish material damage criteria for each of the CHIA's stated hydrologic concerns and each of the parameters that the Division deemed of sufficient concern to warrant regular monitoring during operations and reclamation. It is especially telling that the Division's CHIA provides no explanation for limiting the "indicator parameters" as it did and no statement of reasons why the other parameters of stated or obvious concern listed above did not warrant full analysis in the CHIA through comparison of appropriate material damage criteria to predicted hydrologic impacts.

The Division and ACD will certainly assert the Division's discretion in performing CHIAs as a defense to Petitioners' challenge to the failure to establish material damage criteria for each parameter of concern. Petitioners recognize that the Division has considerable discretion in the process, but that discretion must be exercised, if at all, at the point of selecting parameters of concern. As OSM puts it:

At the start of an assessment, its scope should cover all possibilities. Thus, the scope of a CHIA should initially include a complete analysis of the ground-and surface-water systems in the CIA, from the standpoint of water quantity and quality. This initial scope can then be systematically and logically reduced to those concerns considered significant to maintaining the hydrologic balance of the area. The scope reduction procedures, which must be developed by the regulatory authority, are envisioned to often be qualitative in nature.

*OSM Guidance* at II-1. However, once the winnowing process is complete and the Division has identified parameters of concern, it does not have discretion to limit its CHIA analysis to less than all the stated and implied concerns. To allow the Division to truncate the CHIA process in such a manner (especially without a reasoned explanation) would frustrate the purpose of the procedure by failing to require analysis of **all** potential sources of material damage to the hydrologic balance, thus ensuring that the proposed operation has been designed to prevent material damage from them **all**.

ACD's pre-hearing memorandum baldly asserts that "[n]o provision of Utah's coal program requires designation of numeric material damage criteria in the CHIA to match each water quality or quantity parameter that will be monitored by the operator," *ACD Pre-hearing Memorandum* at 8-9, but the company nowhere explains how the Division may otherwise perform a CHIA that is "sufficient to determine, for purposes of permit approval whether the proposed coal mining and reclamation operation has been designed to prevent material damage to the hydrologic balance outside the permit area.," as Utah Admin. Code § R645-301-729.100 requires. For their part, the Division's witnesses similarly failed to explain how the agency could rationally determine that ACD's proposed operation has been designed to prevent material damage without first establishing material damage criteria for each parameter of concern that the Division identified expressly or by implication, and then comparing those criteria with the predicted effects of the Coal Hollow Mine with respect to each parameter of concern. The short answer, of course, is that the Division could not and did not make a rational material damage determination because it failed to look at the whole range of hydrologic concerns that the Division itself identified for the Coal Hollow Mine.

In sum, the Division short-circuited the CHIA process by failing to establish material damage criteria for each of the parameters of concern that it either expressly listed in the CHIA itself or implicitly identified in approving ACD's hydrologic monitoring plans. If some reason justified truncating the CHIA process in this manner, the Division failed to state it. In deviating from good hydrologic practice and the implicit requirements of the federal and Utah CHIA regulations, the Division acted arbitrarily, capriciously, and in a manner inconsistent with law. On this ground alone, the Board must vacate the Division's approval of ACD's permit application.

C. The Division Unlawfully Failed to Include All Applicable Water Quality Standards As Material Damage Criteria for the Coal Hollow Mine.

As noted earlier in this brief, the Secretary has interpreted 30 U.S.C. § 1260(b)(3) to require regulatory authorities, as part of each CHIA, to establish “**criteria to measure** material damage for purposes of the CHIA.” J.A. at 97 (emphasis supplied). In so doing, the Secretary expressly stated that such criteria must include, at a minimum, all applicable numeric water quality standards and effluent limitations. *Id.* Thus, although the Secretary has afforded each regulatory authority discretion in identifying the **particular** criteria to measure material damage at each monitoring point for a proposed operation, neither the federal regulations nor any of their state program counterparts, including Utah Admin. Code § R-645-301-731, permit regulatory authorities to exclude from those criteria any applicable numeric federal or state water quality standard or effluent limitation. J.A. at 97.

Under the current Federal regulations, regulatory authorities must include all applicable numeric water quality standards and effluent limitations in a set of predetermined material damage criteria contained in the CHIA for each proposed surface coal mining and reclamation operation. *Id.* For the Coal Hollow Mine, that requirement encompasses total iron, total suspended solids, and TDS because they are applicable effluent limitations, *see* MRP Volume 7 at 121, and (at a minimum) arsenic, cadmium, chromium, lead, selenium, boron, and TDS because there are applicable water quality standards for each of those parameters in all streams that may receive discharge from the mine, *see id.* at 122.

As explained earlier in this brief, establishment of material damage criteria is essential to the proper functioning of the CHIA process. Material damage criteria allow the regulatory authority to engage in quantitative analysis of the likely hydrologic impact of existing and proposed mines

on the hydrologic balance of one or more potentially affected watersheds or groundwater systems. This quantitative analysis – the comparison of material damage criteria with the predicted effects of mining operations on the hydrologic balance – is an essential step in the regulatory authority’s determination whether a proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. A contrary interpretation of the CHIA regulations – one that would allow a regulatory authority to perform a CHIA without including each applicable numeric water quality standard and effluent limitation among the material damage criteria for the proposed mine, and thus without quantitatively analyzing the predicted effects of the proposed operation on each parameter for which there is such a standard or limitation – would be inconsistent with SMCRA’s fundamental requirement that the regulatory authority make a reasoned determination whether the proposed operation has in fact been designed to prevent material damage to the hydrologic balance in all of its potential forms.

The requirement to include all applicable water quality standards among the material damage criteria for each proposed mine makes perfect sense as a practical matter. It does no good at all to permit a mine to commence operations if it will predictably violate applicable effluent limitations or cause or contribute to violation of applicable water quality standards after mining begins. By compelling regulatory authorities to include effluent limitations and water quality standards among the material damage criteria for each proposed mine, the federal CHIA regulations and their state program counterparts attempt to ensure that no mining permit issues unless the regulatory authority concludes, based on thorough, competent scientific analysis, that the permit applicant has designed the proposed operation so that it will comply with the principal requirements of the Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-1387 (“Clean Water Act”).

To construe federal or state CHIA regulations to authorize the Division or any other regulatory authority to find that a proposed mine has been designed to prevent material damage to the hydrologic balance outside the permit area even though the pertinent data predict (or worse yet, establish beyond question) that discharges from the mine will cause or contribute to violation of applicable water quality standards would run afoul of Congress's mandate that nothing in SMCRA shall be construed as superceding, amending, modifying, or repealing the Clean Water Act or any rule or regulation promulgated thereunder. 30 U.S.C. § 1292(a)(3). As the United States Court of Appeals for the District of Columbia Circuit held in reviewing the very first regulations to implement SMCRA, "Congress meant exactly what it said in section 702(a)(3) of the Act, that where there is an overlap of regulation the Surface Mining Act is not to be interpreted as altering in any fashion the Federal Water Pollution Control Act." *In re Surface Mining Regulation Litigation*, 627 F.2d 1346, 1366 (D.C. Cir. 1980), citing H.R. Rep. No.45, 94<sup>th</sup> Cong., 1st Sess. 134 (1975) ("The committee concluded that because of the likeness of EPA's abatement programs and the procedures, **standards**, and other requirements of this bill, it is imperative that maximum coordination be required and that **any** risk of duplication or conflict be minimized") (emphasis supplied).

Issuing a mining permit for an operation that will predictably cause or contribute to violation of applicable water quality standards would, without question, effectively supercede or repeal the Clean Water Act's mandate that those who discharge pollutants into the Nation's waterways do so without causing or contributing to degradation of water quality beyond standards set pursuant to Section 303 of the Clean Water Act, 33 U.S.C. § 1313. The purposes of Section 303 are to set water quality standards that protect existing and historic uses of water resources, determine which water resources do not meet those standards, and rehabilitate the latter by restricting the discharge of

offending pollutants into them beyond levels ordinarily imposed under the National Pollutant Discharge Elimination System (“NPDES”). Implementing the “material damage” provisions of SMCRA in a manner that allows new surface coal mining operations in a watershed to cause or contribute to violation of any applicable water quality standard would obviously conflict with 33 U.S.C. § 1313 and thus effectively supercede or repeal the Clean Water Act in violation of 30 U.S.C. § 1292(a)(3). *See, e.g.*, 40 C.F.R. § 122.4(i) (prohibiting issuance of NPDES permits to new sources or new dischargers to water-quality impaired resources pending compliance with Section 303's total maximum daily load process); *Friends of Pinto Creek v. U.S. E.P.A.*, 504 F.3d 1007 (9th Cir., 2007).

The requirement to include effluent limitations and water quality standards among the material damage criteria for each proposed coal mining operation is one of the mechanisms by which SMCRA’s implementing regulations implement Congress’s mandate not to supercede or otherwise undercut the policies advanced by the Clean Water Act. In the context of the Clean Water Act’s provisions for establishing and achieving compliance with water quality standards, there simply is no legal basis for a regulatory authority under SMCRA to construe “material damage to the hydrologic balance outside the permit area” in a manner that conflicts with those provisions, and thus effectively supercedes or repeals them, by permitting new coal mines to cause or contribute to violations of applicable water quality standards. It is inconceivable that Congress, having established Section 303's programs for protecting and rehabilitating the Nation’s waters, intended SMCRA regulators to administer the statute’s provision for preventing material damage to the hydrologic balance outside coal mine permit areas in a manner that ignores and conflicts with Section 303.

The Division violated this requirement not only by failing to establish all applicable water quality standards as material damage criteria for the Coal Hollow Mine but also in designating the trigger level of TDS concentration in surface water at 3,000 milligrams per liter rather than the applicable water quality standard of 1,200 milligrams per liter. CHIA at 40. Even if the 3,000 milligrams per liter standard were a material damage criterion – which it is not because the Division has made clear that material damage analysis will only begin if and when stream concentrations persistently exhibit that level – the Division lacked authority to establish any TDS concentration above 1,200 milligrams per liter as the material damage criterion for surface waters. Moreover, even if the Division had authority to establish a material damage criterion at some concentration greater than the applicable water quality standard, the data before the Division did not support the choice of 3,000 milligrams per liter.

The Division's CHIA witness attempted to justify the Division's decision by asserting that pre-mining TDS concentrations in certain reaches of potentially affected streams already exceed the applicable water quality standard. Transcript at 560. The witness claimed that in such circumstances the Division had no alternative but to establish a higher concentration as the material damage standard. *Id.* (“So your background levels are over the water quality standard in a lot of instances here. So we couldn't make the water quality standard our material damage criterion”).

The Division has it all wrong. If a regulatory authority finds during its CHIA analysis that a water resource in the cumulative impact area already exceeds an applicable water quality standard for a pollutant that the proposed coal mine would discharge, the regulatory authority must dutifully apply the water quality standard as a material damage criterion and conclude that the permit application cannot be approved unless and until the water quality standard at issue is lawfully

revised upward or the proposed mine obtains a waste load allocation under the Clean Water Act's total maximum daily load ("TMDL"). That is the precisely result that Congress and the Utah legislature intended in requiring regulatory authorities, including the Division, to withhold approval of permit applications where the operation has not been or cannot be designed to prevent material damage to the hydrologic balance due to unacceptable pre-existing levels of pollution in potentially affected water resources. 30 U.S.C. § 1260(b)(3); Utah Admin. Code § R645-300-133.400.

There is nothing at all untoward or unreasonable about requiring a proposed mining operation in such circumstances to bide its time until necessary arrangements can be made to allow the mine to operate without violating the Clean Water Act and SMCRA's mandate to prevent material damage to the hydrologic balance. Delay in the commencement date of any new mine or other industrial operation is never welcome, but it is a price that Congress and the Utah legislature have required coal operators to pay in order to protect and restore the Nation's water resources.

The Division simply has no authority to circumvent this mandate by setting material damage criteria at levels in excess of applicable water quality standards. Using the Division's approach, no regulatory authority would set material damage criteria below levels that would support a *pro forma* but bogus finding that each proposed mining operation had been designed to prevent material damage. Manipulating the process in that manner certainly did allow the Division to issue ACD's permit, but that permit issued despite the probability, according to the Division's view of current stream conditions, that ACD will cause or contribute to a violation of water quality standards in Kanab Creek instantly with its first discharge. The Division's action is thus entirely inconsistent with the letter and the spirit of the CHIA process, and it cannot stand.

As a separate matter, even if the Division had authority to set the material damage criterion for TDS in surface water at a concentration in excess of 1,200 milligrams per liter, there was no basis in the record for setting the criterion at the grossly excessive level of 3,000 milligrams per liter. The hearing evidence presented by both the Division and the Petitioners shows that current average TDS surface water concentrations in the cumulative impact area are, for the most part below the applicable water quality standard and, at the areas of greatest average concentration, exceed the water quality standard only slightly. CHIA at 29 (Table 4) and Hearing Transcript at 556 (noting average concentrations at certain monitoring stations of 837, 1227, 1595, and 815 milligrams per liter; Exhibit P-17 and Hearing Transcript 672-78 (average TDS concentration for all baseline data is “just under 857 milligrams per liter;” average TDS concentration for all Kanab Creek baseline data is “just under 1120 milligrams per liter;” average TDS concentration for all baseline data other than Kanab Creek is “just under 612 milligrams per liter;” “[t]he 1200 TDS is really a -- these data fit very nicely within that, as being a measure of the upper limit of what these data look like when considered as a whole”). Even the low-flow concentrations observed in Kanab Creek, which do episodically exceed the water quality standard, average 1595 milligrams per liter according to the Division’s witness. Hearing Transcript at 556. This average concentration is just over one-half the 3,000 milligram per liter level that the Division settled on as a “flag” for heightened concern about TDS pollution.

All of the hearing evidence on this point thoroughly belies the unsupported conclusions of the Division’s CHIA witness that “the background levels [of TDS concentration] were higher” than the applicable water quality standard of 1,200 milligrams per liter, Hearing Transcript at 566, or that the water quality standard is “not representative of the background data that we’ve seen,” Hearing

Transcript at 567. If the goal is to preserve the current quality and uses of water in Kanab Creek and elsewhere in the area, waiting until the highest average current concentrations nearly double is hardly a rational course of action.

The Division's testimony at hearing revealed the arbitrary and capricious nature of its decision on this issue. The Division's CHIA witness testified that she settled on 3,000 milligrams per liter as a standard solely because a map prepared by the United States Geological Survey depicted the worst seasonal TDS concentrations in Lower Robinson Creek and Kanab Creek as falling with a range of 1,000 to 3,000 milligrams per liter. Hearing Transcript at 598. From this, the witness deduced that it is not "abnormal" for TDS concentrations in area streams to reach 3,000 milligrams per liter. Hearing Transcript at 589-90. However, on cross-examination the Division's witness admitted that she had not obtained or reviewed the specific data on which the map in question is based and that she did not know whether the map's underlying data for area streams included anything more than a single water sample result. Hearing Transcript at 592, 595-96.<sup>5</sup>

Moreover, when pressed to explain how allowing TDS concentrations in area streams to rise to 3,000 milligrams per liter before even considering whether to take preventative or remedial action could possibly be protective of established agricultural uses in the area, the Division's witness was

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<sup>5</sup> Petitioners' hearing evidence casts substantial doubt, at the very least, on the Division's interpretation of the map in question. Exhibit P-14 and Hearing Transcript 678-685, especially Hearing Transcript at 682 ("So the high flow period for Kanab Creek and Lower Robinson Creek are not 1- to 3000. The high flow periods are 500 to 1000. You only get the numbers in the 1- to 3000 range, according to this map, when you are talking about low flow periods, when there isn't that much water running through. So that is what this map is actually depicting") and Hearing Transcript at 685 ("The site data would argue that Kanab Creek, not only does not now, but probably never has consistently approached the 3000 end. But from the map, itself, no. No one can draw any valid inference without looking at the underlying data as to what the data looked like that Dr. Price was relying on").

unable to do so. Hearing Transcript at 600. At the same time, however, the Division's witness readily and correctly acknowledged that Utah's applicable water quality standard for TDS concentration in surface water is based on the judgment of the Utah Division of Water Quality about what is necessary to protect agricultural uses. Hearing Transcript at 601.

It was patently arbitrary and capricious for the Division set its "flag" for TDS concentration at 3,000 milligrams per liter based solely on the top value of the worst-case range shown on a nearly thirty year old map which may have been based (so far as area streams are concerned) on a single measurement of water quality. This is especially the case because in doing so the Division ignored the considered judgment of the Utah Division of Water Quality concerning the level of TDS concentration necessary to protect agricultural uses and ignored as well – or grossly exaggerated – the actual baseline TDS concentrations in area streams.

ACD's pre-hearing memorandum on this issue begins with a gross distortion of Petitioners' position on the mandate to include all applicable water quality standards among the material damage criteria for each proposed coal mining operation. Petitioners do not contend that 30 C.F.R. §§ 816.42 or 817.42 or Utah Admin. Code § R645-301-751 directly require the inclusion of water quality standards or effluent limitations. Instead, as stated earlier in this brief, OSM's statement of basis and purpose for the federal CHIA regulations mandates the inclusion of water quality standards and effluent limitations among the material damage criteria selected for each coal mine without regard to where violation of those standards or limits may occur during mining. As ACD correctly notes, the primary function of material damage criteria is to test whether a mine has been designed to prevent material damage outside the permit area. Use of material damage criteria for enforcement purposes is incidental to their role in restraining the issuance of mining permits that will cause or

contribute to violations of water quality standards, effluent limitation, or other forms of material damage to the hydrologic balance. Nothing about that fact, however, detracts one iota from the mandate set out in OSM's regulatory preamble for inclusion of water quality standards and effluent limitations among the material damage criteria for each mine.

Although ACD correctly notes that OSM's December 24, 2008, decision to approve two amendments to the West Virginia state program includes an interpretation of the federal CHIA regulations that conflicts with the agency's 1983 basis and purpose statement, *see* 73 Fed. Reg. 78,977-78 (Dec. 24, 2008), there are several reasons why reliance on this decision is misguided. First, it is not a national rulemaking, as was the 1983 promulgation of the current federal CHIA regulations. OSM cannot lawfully change its interpretation of national regulations except through a new national rulemaking. *See* 30 U.S.C. § 1251(b) (mandating promulgation of national SMCRA regulations through a special procedure). Second, the interpretation that OSM announced in its 2008 program amendment decision is, without explanation, diametrically opposed to the interpretation that OSM announced in 2004 with respect to the identical program amendments. Third, the United States District Court for the Southern District of West Virginia struck down OSM's 2004 approval of the same program amendments, and the United States Court of Appeals for the Fourth Circuit affirmed that result. *Ohio Valley Environmental Coalition, Inc. v. Norton*, No. 3:04-CV-00084 (S.D.W.Va. Sep. 30, 2005) affirmed *sub nom. Ohio River Valley Environmental Coalition, Inc. v. Kempthorne*, 473 F.3d 94 (4<sup>th</sup> Cir. 2006). Fourth, OSM's 2008 decision does not consider the agency's mandate under 30 U.S.C. § 1292(a)(3), which completely undercuts the interpretation announced in that decision. Finally, OSM's 2008 decision is currently pending judicial review in the same federal district court, before the same judge that struck down OSM's 2004 approval of the

same two amendments, which are entirely unchanged. *Ohio River Valley Environmental Coalition, Inc. v. Salazar*, No. 3:09-00149 (S.D.W.Va. filed Feb. 18, 2009). For all these reasons, Petitioners urge the Board to adhere to and apply OSM's 1983 interpretation of the CHIA regulations and avoid the agency's inconsistent interpretation of the law.

#### IV.

**The Division Erred in Deciding that Sink Valley Is Not an Alluvial Valley Floor  
and Exempting ACD From Satisfying the Permitting Requirements  
for Conducting Operations In or Adjacent to Such an Area**

Despite acknowledging that the portion of Sink Valley within and adjacent to ACD's permit area satisfies the regulatory criteria for determining the existence of an alluvial valley floor ("AVF"), *see* Utah Admin. Code §§ R645-302-321.300 to -321.323 ("the regulatory AVF mandate"), the Division nonetheless decided not to obey the regulatory command to issue a positive AVF determination. *See* Hearing Transcript at 873-74. The Division reached this decision by interpreting certain language in the regulatory definitions of "alluvial valley floors" and "upland areas," Utah Admin. Code § R645-100-200, to exclude Sink Valley from the regulatory AVF mandate. Specifically, the Division construed parts of the definitions that identify certain areas and landforms that are **NOT** AVFs to override the regulatory mandate to make a positive AVF determination with respect to every area that (1) includes unconsolidated stream-laid deposits holding streams and (2) has sufficient water available to support agricultural activities – as evidenced by one or more of three irrigation factors.

The Division got it exactly backwards. The regulatory AVF mandate establishes specific criteria for determining what **IS** an AVF, and it directs the Division to make a positive AVF determination whenever those criteria are met. In so doing, the regulatory AVF mandate effectively

bars the Division from determining that any area which satisfies the mandate's criteria nonetheless qualifies as an excluded "upland area" that is "generally overlain by a thin veneer of colluvial deposits composed chiefly of debris from sheet erosion, deposits formed by unconcentrated runoff or slope wash, together with talus, or other mass-movement accumulations, and windblown deposits." Cf. Utah Admin. Code § R645-302-321.300 to -321.323, § R645-100-200 ("alluvial valley floors" and "upland areas").

Simply put, the Division may not construe a general definition of what is **NOT** an AVF to control the specific definition of what **IS** an AVF. To the contrary, if an area meets the criteria set out in the regulatory AVF mandate, that area cannot also be the sort of upland area that is excluded from the definition of "alluvial valley floor."

At least four principles of statutory construction support the Petitioners' interpretation of the regulations at issue. First, statutes or regulations that address a common subject must be read together, giving effect wherever possible to all of their provisions. *See New York v. United States*, 505 U.S. 144, 170 (1992) (declining to construe one provision of a statute as a separate mandate, independent of the remainder of the statute); *see also Morra v. Grand County*, 230 P.3d 1022, 1027 (Utah 2010) (relevant ordinance was not to be read as a collection of individual amendments, but should be interpreted as a whole). Second, in order to effectuate the first principle just mentioned, a specific provision in a statute or regulation must control a more general provision in the same or another statute or regulation. *See, e.g., Varity Corp. v. Howe*, 516 U.S. 489, 511 (1996) ("To apply a canon properly one must understand its rationale. This Court has understood the present canon ('**the specific governs the general**') as a warning against applying a general provision when doing so would undermine limitations created by a more specific provision.") (emphasis supplied). Third,

where a legislative or rulemaking body creates express exceptions or exclusions to the operation of a regulation, one may not construe language elsewhere in the same or another statute or regulation to imply additional exceptions or exclusions. *See Utah Dept. of Human Serv. V. Hughes*, 156 P.3d 820, 826-27 (Utah 2007) (holding that the State Board wrongly rested its decision on an implied exception, stating that this runs contrary to the intent of Congress in its creation of express conditions). Fourth, a statute or regulation must be construed in a manner that is most consistent with its underlying policy or purpose. *See Jett v. Dallas Indep. Sch. Dist.*, 491 U.S. 701, 742 n.2 (1989) (declaring that the third prong of a four-part test to determine whether a statute contains an implied exception is whether it is “consistent with the underlying purposes of the legislative scheme to imply [said implication]...?”); *see also In re T.R.E.*, 213 P.3d 877, 879 (Utah Ct. App. 2009) (“While we interpret a statute by looking at its plain language, ‘we [also] try to read the plain language of a statute *as a whole*, with due consideration of the other provisions and in an effort to interpret them in harmony with each other and with other statutes under the same and related chapters.’”) (quoting *Dale T. Smith & Sons v. Utah Labor Comm’n*, 2009 UT 19, ¶ 7, 627 Utah Adv. Rep. 3, 208 P.3d 533 (emphasis added) (internal quotation marks omitted)).

Here, the regulatory AVF mandate and the regulatory definitions of “alluvial valley floors” and “upland areas” all concern the regulation of coal mining on AVFs. Accordingly, none of the provisions may properly be read in isolation. One must interpret them, to the extent possible, in a manner that gives effect to each provision.

Construing the definition of “alluvial valley floors” or “upland areas” to exclude any area that meets the criteria of the regulatory AVF mandate clearly and directly frustrates the operation of the mandate by completely reversing the result that it expressly dictates. On the other hand,

construing the mandate to require a positive AVF determination in those upland areas that include unconsolidated stream-laid deposits holding streams and have sufficient available water for agriculture does no violence at all to the regulatory definitions. This is so because the regulatory definitions exclude only those “upland areas” that are “generally overlain by a thin veneer of colluvial deposits composed chiefly of debris from sheet erosion, deposits formed by unconcentrated runoff or slope wash, together with talus, or other mass-movement accumulations, and windblown deposits.” Thus, the three regulations are harmonized by construing the AVF mandate to control wherever its enumerated criteria are present. In marked contrast, the regulations hopelessly conflict with each other if the definitions are construed to trump the regulatory AVF mandate.

The second important legal principle at work here makes the same point in a different way. Because the regulatory AVF mandate defines what an AVF is in very specific terms, that provision governs the other two provisions’ far more general definitions of what an AVF is not. The regulatory definitions do not contain specific criteria for defining what an AVF is not; they merely provide general examples of landforms or conditions that are, in general, not AVFs. For that reason, where there are unconsolidated stream-laid deposits holding streams and sufficient available water in areas that might be said to contain any of the landforms or conditions that generally are not associated with AVFs, logic dictates that the specific criteria for a positive AVF determination control the determination and that the general listing of non-AVF landforms or conditions yield.

Petitioners’ interpretation is bolstered by the overall structure of the AVF provisions that Congress designed. In crafting the provisions of SMCRA that protect AVFs, Congress expressly excluded certain areas that otherwise qualify as AVFs. Specifically, Congress excluded (1) “undeveloped range lands which are not significant to farming on said alluvial valley floors,” (2)

“those lands as to which the regulatory authority finds that if the farming that will be interrupted, discontinued, or precluded is of such small acreage as to be of negligible impact on the farm's agricultural production,” (3) “those surface coal mining operations which in the year preceding August 3, 1977, (I) produced coal in commercial quantities, and were located within or adjacent to alluvial valley floors or (II) had obtained specific permit approval by the State regulatory authority to conduct surface coal mining operations within said alluvial valley floors.” 30 U.S.C. § 1260(b)(5).

These provisions demonstrate that Congress knew precisely how to exclude AVFs from the reach of the new law when it wanted to do so. Congress might just as easily have also excluded all upland areas or all areas that do not exhibit a floodplain and terrace complex, regardless of whether such areas contain unconsolidated stream-laid deposits holding streams and sufficient available water for agriculture. Congress did not do so, however. Nor did the Secretary of the Interior in promulgating the AVF rules. Nor did Utah in adopting the coal rules that govern this case. Because Congress, the Secretary of the Interior, and Utah have expressly excluded certain AVFs from the reach of the law's protective provisions, it was error for the Division to add to the list of excluded provisions by drawing on regulatory definitions. As with the previously discussed principles of statutory construction, cogent interpretation of the law gives effect only to the express exceptions set forth in the texts of the statute and regulations, while construing the provisions meant to protect AVF's to extend to every other circumstance that their specific terms encompass.

Fourth, the Division's construction of the regulatory definitions to control the regulatory AVF mandate ignores – and thus violates – the underlying policy and purpose of the AVF regulations as whole. Clearly, the AVF regulations are meant to protect existing and potential

agricultural operations from impairment by coal mining operations. Conversely, the only reason that the regulatory definitions address the subject of what an AVF is not is to allow regulatory authorities and coal operators to avoid the time and expense of investigating areas that generally have no agricultural merit. Where, as in this case, the regulatory authority has overwhelming evidence of actual, ongoing agricultural operations on an area of unconsolidated stream-laid deposits holding streams, and where there also is overwhelming evidence of sufficient available water for irrigation of one sort or another, it strikes at the heart of the law to attempt to shoehorn the situation into one or another example of what an AVF generally is not.

Not only does sound statutory and regulatory construction require reversal of the Division's decision, so does the absence of evidence in the record to support the Division's finding that Sink Valley is a progression of alluvial fans composed of colluvial rather than alluvial deposits. As Petitioners' expert witness on the AVF issue made clear throughout his testimony, nothing in the record before the Division when it made its negative AVF finding supported the notion that the agricultural portion of Sink Valley is composed of a progression of alluvial fans or any of the other features mentioned in the regulatory definitions as atypical of alluvial valley floors.

Specifically, the mapping of Sink Valley in ACD's permit application does not distinguish between stream and fan alluvium, and therefore does not establish the existence of a progression of alluvial fans into the agricultural areas of Sink Valley. Exhibits P-22, P-23, and P-24; Hearing Transcript at 907-09. Similarly, ACD's borehole logs report only the grain size of materials encountered; they fail to present vital information about the subsurface conditions such as bedding, thickness of units, cross-bedding, sorting, matrix support, or class support, which a geologist might

use to interpret the process that resulted in the deposition of the materials. Exhibit P-25; Hearing Transcript at 915-16.

ACD's soil test pit reports confirm the existence of unconsolidated alluvial deposits in Sink Valley. Exhibits P-26 and P-27; Hearing Transcript at 916-21. Moreover, these reports provide strong evidence that the agricultural area of Sink Valley is indeed a true valley landform rather than a progression of alluvial fans. Although the soil test pit reports directly contravene the Division's unsupported position on the issue, the Division offered no testimony or data to rebut them.

ACD's cross-sections provide no support for the Division's negative AVF determination. Many of them present nothing but sheer speculation about subsurface conditions across the area they are said to portray, and like the borehole data previously discussed, the cross-sections fail to distinguish between alluvial or colluvial deposits. Exhibit P-28; Hearing Transcript at 922-26. Even worse are the infrared photographs that ACD filed to depict vegetative loss from spring to autumn. ACD paired a spring photograph taken during a relatively wet year with an autumn photograph taken in a much drier year, thus effectively comparing apples to oranges and inexplicably distorting the degree of loss depicted. Exhibits P-29 and P-30; Hearing Transcript at 928-31.

The mapping of stream channels that ACD filed, Exhibit P-31, compared against a 1966 map of the same area, Exhibit P-31, and a 1987 map prepared by a consultant for a former permit applicant, Exhibit P-32, show that man-made influences have gradually rendered stream channels in Sink Valley discontinuous when not too long ago they were not so. Hearing Transcript at 931-40. Indeed, the 1966 map shows Sink Valley Wash as a continuous intermittent stream throughout the area in question. Exhibit P-31.

ACD's hydrologic data for Sink Valley come from two monitoring stations established in 2009, for which there were only three monitoring visits prior to approval of ACD's permit – producing a patently insufficient amount of data to support the Division's assertion that the stream channels in Sink Valley are dry. Hearing Transcript at 942-43. Finally, ACD's permit application contains no mapping of the presence or absence of flood plains and terraces in Sink Valley – the company simply provided no information in either direction upon which the Division could rest its negative determination. Hearing Transcript at 995-96.

Finally, Petitioners note that the Division has, on three previous occasions, positively determined that Sink Valley is an AVF. Hearing Transcript at 792-93. The Division cannot now arbitrarily reverse these three decisions without a “reasoned analysis” based on new data that clarifies why such a reversal is warranted. *See Motor Vehicle Mfgs. Assn. v. State Farm Mutual Automobile Ins. Co.*, 463 U.S. 29, 42 (1983). As discussed above, ACD has not provided any new data in its permit application for the Division to develop a “reasoned analysis” that would justify reversal of its earlier decisions. In fact, the only new data in the permit application are ACD's soil test pit reports which confirm the existence of unconsolidated alluvial deposits in a valley, and thus support the Division's earlier decisions that Sink Valley is an AVF. Exhibits P-26 and P-27; Hearing Transcript at 916-21. Also as discussed above, ACD's geologic maps, drill hole information, cross-sections, infrared photographs, mapping of stream channels, and scant hydrologic monitoring data also fail to provide a “reasoned analysis” that would support a reversal of the Division's previous determination.

In sum, the Division's negative AVF determination is the product of an erroneous interpretation of the pertinent statutes and regulations. Moreover, the record does not support the

Division's factual basis for concluding that Sink Valley is not an AVF. Accordingly, because the Division's approval of ACD's permit application with respect to AVFs is inconsistent with law, it cannot stand.

V.

**The Division Unlawfully Approved the Coal Hollow Mine Permit Application Despite the Absence of Monitoring Stations on Lower Robinson Creek That Are Capable of Identifying the Effect of the Mine on the Hydrologic Balance**

The Division erred in approving the Coal Hollow Mine permit application because it does not require ACD to monitor surface water in Lower Robinson Creek at each permit boundary. Instead, the Division approved a surface water monitoring plan under which ACD will produce surface water data from an upstream source located 0.88 miles above the eastern permit boundary, which will provide data on flow rate and water chemistries that do not include the hydrologic influence of any flow that enters Robinson Creek from a sub-watershed measuring over half a square mile. For that reason, data that ACD collects from the approved upstream monitoring station on Lower Robinson Creek will not accurately characterize the condition of water in that stream when it enters ACD's permit area during times of snowmelt and after significant precipitation events.

Worse yet, the approved surface water monitoring plan allows ACD to produce data on Lower Robinson Creek downstream of the Coal Hollow Mine that ACD will collect three-quarters of a mile below the permit boundary, only after water in Lower Robinson Creek is changed by the effect of ground water and surface water inflows from a sub-watershed measuring 0.39 square miles. Data collected at the approved downstream monitoring station on Lower Robinson Creek will not accurately characterize the condition of water in that stream when it leaves ACD's permit area at any time of the year.

Due to the position of these monitoring stations and the absence of additional stations at each permit boundary, neither the Division nor interested members of the public will be able to ascertain the effect of the Coal Hollow Mine on Lower Robinson Creek. Consequently, neither the Division nor the public will be able to determine whether ACD's operations fail to prevent material damage to the hydrologic balance outside the permit area, if such damage should occur on Lower Robinson Creek.

The Utah coal rules require that the operation plan for each coal mine in the State contain, among other things:

the steps to be taken during coal mining and reclamation operations through bond release to minimize disturbance to the hydrologic balance within the permit and adjacent areas; to prevent material damage **outside the permit area**; . . . to comply with the Clean Water Act (33 U.S.C. 1251 et seq.); and to meet applicable federal and Utah water quality laws and regulations.

Utah Admin. Code § R645-301-731 (emphasis supplied). To provide the information essential to the working of the operation plan, the rules require (among other things) a surface water monitoring plan that is capable of producing data that may be used to determine the impacts of the operation on the hydrologic balance, Utah Admin. Code § R645-301-731.222, and to detect noncompliance with permit conditions, Utah Admin. Code § R645-301-731.223.

To function properly, then, each surface water monitoring plan must be capable of producing data that ACD, the Division, and the public may analyze to isolate the effect of the mine in question on each potentially affected surface water resource. This must be accomplished by comparing, at a minimum, the condition of surface water in a stream as it enters a permit area to the condition of surface water in the stream as it leaves the permit area. Hearing Transcript at 1137 ("basically, you want to look at what's coming in the permit area and ultimately what's going out the permit area and

determine if there's impacts to the hydrologic balance"), 1138 ("With regard to water quality standards, if you don't know what the water quality coming into the mine is, you don't have the ability to evaluate what impacts might be related to the mine").

In many settings – perhaps in most coal mines – additional surface water monitoring sites may be necessary to detect the influence of the discharge of ground water that the mine has affected but which comes to the surface outside the permit area. However, the ability to analyze upstream and downstream data collected at the permit boundaries is a fundamental requirement of all surface water monitoring plans for mines which, like the Coal Hollow Mine, affect surface water resources within their permit areas. *Id.*

The evidence in this case illustrates these points quite well. Petitioners' expert witness on this issue established that, as mentioned earlier in this brief, the sole surface water monitoring location on Lower Robinson Creek at which ACD will collect data is located 0.88 mile above the eastern (or upstream) permit boundary. Hearing Transcript at 1108. When there is water in this reach of Lower Robinson Creek – generally during times of snowmelt or after significant precipitation events – a sub-watershed measuring 0.53 square miles drains into Lower Robinson Creek in the interval between ACD's upstream monitoring station and the permit boundary. *Id.* at 1110.

There are at least two established water channels that direct flow into Lower Robinson Creek from areas of this sub-watershed. *Id.* at 1113 and Exhibit P-37. Inspection of these channels by Petitioners' expert following snowmelt in 2010 revealed evidence that they contributed flow to Lower Robinson Creek well after flow had ceased at the approved monitoring station. *Id.* at 1113-14, 1125-26 and Exhibit P-37. More importantly, inspection on the same day of the point at which

Lower Robinson Creek enters the permit area showed that, as with the intervening tributaries, there had been flow at the permit boundary well after flow had ceased at the approved monitoring point nearly a mile upstream. To the extent that the Division or ACD attempt to justify the absence of a monitoring station at the eastern permit boundary based on the unsupported notion that conditions are always the same there as at the approved monitoring location, the **only** direct evidence in the record, which the Petitioners rather than ACD have provided, demonstrates the folly of that notion.

Simply put, the fact that the reach of Lower Robinson Creek upstream of ACD's permit boundary is ephemeral does not justify the absence of a monitoring station at the permit boundary. Information about the flow or lack of flow in Lower Robinson Creek at the eastern permit boundary itself is fundamentally necessary to enable comparison to the stream's condition at and below that point. Although the approved monitoring station characterizes conditions at the permit boundary accurately when there is no water at either location, the approved monitoring station fails when either there is water at both locations or when, following snowmelt or a significant rain, there is water at the permit boundary but not at the approved monitoring location. Because it is essential to characterize upstream flow in Lower Robinson Creek accurately whenever it does occur, the notion that the ephemeral nature of that reach justifies monitoring wherever one may choose is complete nonsense.

The evidence concerning the need for a monitoring station at the western or downstream permit boundary is even more compelling. Petitioners' expert witness established that the approved downstream monitoring station for the Coal Hollow Mine is located three-quarters of mile below the western permit boundary. Hearing Transcript at 1094, 1114. In that interval, a watershed measuring 0.39 square miles contributes to the flow and water chemistry observed at the approved

monitoring station. *Id.* at 1114. Not only do well-defined ephemeral channels direct water into Lower Robinson Creek in the interval between the western permit boundary and the approved downstream monitoring station, *Id.* at 1115, 1117-18 and Exhibit P-37, but an irrigated field adjacent to this reach of Lower Robinson Creek contributes both surface water and ground water discharge to the stream during at least part of the year, *id.* at 1120, 1122, and Exhibit P-37. In addition to these sources of inflow, the interval of Lower Robinson Creek between the western permit boundary and the approved downstream monitoring station appears to be a gaining stream throughout the year as the result of ground water discharge in the streambed and along its sides. *Id.* at 1117, 1135. Indeed, Petitioner expert reported that the measured flow rate at the approved downstream monitoring location was 10 times the flow rate measured on the same day at the western permit boundary. Although the increase in flow in this interval may not uniformly be ten-fold throughout the year, even the smaller increase suggested by ACD's expert would render data collected at Monitoring Station SW-5 completely unreliable with respect to conditions at the western permit boundary.

It is no answer to claim, as did ACD's expert witness, either that (1) the amount of inflow that Petitioners' expert observed during his inspection was the unusual product of a failed part of the irrigation system, (2) large increases in flow observed at the approved downstream monitoring station are traceable to their sources in the intervening stream reach, or (3) ground water discharge from the mine will likely enter Lower Robinson Creek downstream of the western permit boundary and thus would not be detected at a monitoring station located at the boundary. Hearing Transcript at 1195-1201. First, the reason that a monitoring station must be placed at the western boundary is to ensure accurate measurement of flow and water quality at the permit boundary, rather than depending on after-the-fact investigation and back-calculations to approximate the needed

information from data that includes the influence of outside factors. Second, although the potential for ground water discharge to Lower Robinson Creek downstream of the western permit boundary certainly argues for a second additional monitoring station capable of detecting that influence, ACD's duty to avoid material damage to the hydrologic balance outside the permit area demands that the surface water monitoring plan include a monitoring station at the downstream permit boundary.<sup>6</sup> Utah Admin. Code § R645-301-731.

Nor does the existence of monitoring station BLM-1 inside the permit area excuse the Division's failure to require ACD to monitor Lower Robinson Creek at the western permit boundary. Hearing Transcript at 1131-35. In the first place, neither the Division nor ACD has designated BLM-1 as appropriate for that purpose. They continue to designate and treat Station SW-5 as the approved downstream monitoring station for Lower Robinson Creek.

In any event, use of BLM-1 as the downstream monitoring location would not comply with the pertinent Utah coal rules for two reasons. First, ACD does not monitor the full range of parameters at that location that the rules require. Hearing Transcript at 1130. Second, there is substantial ground water inflow to Lower Robinson Creek in the quarter- to half-mile interval between BLM-1 and the western permit boundary, such that data obtained at BLM-1 do not accurately characterize water in the stream at the western permit boundary. *Id.* at 1131-32.

Accurately ascertaining the impact of the Coal Hollow Mine on Lower Robinson Creek is likely the most important hydrologic task to be done once mining begins. After all, Lower Robinson

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<sup>6</sup> In any event, the approved downstream monitoring location would still be at an inappropriate location to detect only the combined surface water and ground water influences of the Coal Hollow Mine, due to the numerous intervening non-mine influences between the lowest ground water discharge point and the approved monitoring location.

Creek is the only surface water resource that the Coal Hollow Mine will directly affect. The effect will be dramatic: ACD will temporarily re-route approximately 2,000 feet of the streambed of Lower Robinson Creek, then attempt to restore the stream to a reconstructed channel that will approximate its current path. Hearing Transcript at 1099-1100. The new channel, however, will traverse mine spoils rather than bedrock or alluvium, as it currently does. *Id.* There is potential for alteration of both water quality and quantity as a result of these activities. *Id.* at 1100. The potential changes that the Coal Hollow Mine may cause to Lower Robinson Creek make it especially important that ACD's monitoring data allow for straightforward determination of the effect of the mine on the stream.

In sum, the Division's approval of ACD's permit application was clear error due to the absence from the surface water monitoring plan for the Coal Hollow Mine of monitoring stations on Lower Robinson Creek at the eastern and western permit boundaries. Without those monitoring stations, ACD will not obtain data that the company, the Division, or the public may use to determine the impact of the Coal Hollow Mine on Lower Robinson Creek in particular or on the hydrologic balance of the area in general. Because the approved surface water monitoring plans do not meet the requirements of the Utah coal rules, the decision to approve ACD's permit application cannot lawfully stand.

## VI.

### **The Division Unlawfully Approved the Coal Hollow Mine Permit Application Despite the Absence of Complete Baseline Hydrologic Data on Groundwater Resources**

The Utah coal rules require that each permit application include baseline hydrologic information on "existing wells, **springs and other ground-water resources**" with respect to the location, ownership, chemistry, and "approximate rates of discharge or usage" of each. Utah Admin.

Code § R645-301-724.100 (emphasis supplied). Instead of providing the required information on a series of seeps or springs that discharge to the bed and through the banks of Lower Robinson Creek on the permit area at a varying distance of one-quarter to one-half mile east of the western permit boundary, Hearing Transcript at 1116-17, 1124-25, 1130-32, ACD included information on surface water flow in Robinson Creek at a monitoring station located three-quarters of a mile downstream of the western permit boundary.

ACD also included limited information on surface water in Lower Robinson Creek at a point designated “BLM-1,” which is located in the midst of the series of seeps and springs. *Id.* at 1131-33. However, ACD produced no information on total iron or total manganese in the samples it obtained from BLM-1, *see* Exhibit D-2, Coal Hollow Water Data – 10-15-2009.xls, and thus the information from BLM-1, even if one might properly characterize the sampling there as composite ground-water sampling of the springs upgradient of that point, is not the complete baseline information that the Utah coal rules require for springs or other ground-water resources. This is so because (1) ACD failed to test for all required parameters and (2) ACD’s sampling at BLM-1 does not include, and thus does not characterize, the discharge from seeps and springs located downstream of BLM-1, including a number of them within ACD’s permit area.

ACD’s sampling of the springs in question three-quarters of mile downstream at Monitoring Station SW-5 is hopelessly inaccurate. As explained in the previous section of this brief, Monitoring Station SW-5 is located three-quarters of mile below the western permit boundary. Hearing Transcript at 1094, 1114. By the time that water from the springs and seeps in question reaches Monitoring Station SW-5, it has flowed on the surface for such a great distance it can no longer be reasonably characterized as ground water. *See* Hearing Transcript at 1140.

In that interval, a watershed measuring 0.39 square miles contributes to the flow and water chemistry observed at the approved monitoring station. *Id.* at 1114. Not only do well-defined ephemeral channels direct water into Lower Robinson Creek in the interval between the western permit boundary and the approved downstream monitoring station, *Id.* at 1115, 1117-18 and Exhibit P-37, but an irrigated field adjacent to this reach of Lower Robinson Creek contributes both surface water and ground water discharge to the stream during at least part of the year, *id.* at 1120, 1122, and Exhibit P-37. In addition to these sources of inflow, the interval of Lower Robinson Creek between the western permit boundary and the approved downstream monitoring station appears to be gaining stream throughout the year as the result of ground water discharge in the streambed and along its sides. *Id.* at 1117, 1135 (reporting that the measured flow rate at the approved downstream monitoring location was 10 times the flow rate measured on the same day at the western permit boundary). All of these factors make it impossible to accurately characterize water discharging from the seeps and springs in question on the basis of data obtained at Monitoring Station SW-5. *Id.* at 1141.

It is vitally important that ACD collect accurate baseline data concerning the ground water discharge from the bed and banks of Lower Robinson Creek. These resources will be the ones more likely affected by the removal of overburden from the pit areas, the mining of coal, and the backfilling of the pits after mining. Water moving through the new system may be significantly different in quality and quantity than the water discharging from the streambed and banks today. Without accurate baseline, it will be impossible for the Division or the public to detect the full effect of ACD's operations.

Because data that ACD obtained from Monitoring Station SW-5 do not accurately characterize the quality or quantity of water discharging from the seeps and springs in Lower Robinson Creek more than three-quarters of a mile away, the company's permit application was fatally deficient. Instead of approving the application and issuing ACD's permit, the Division was obliged to withhold approval pending submission of the required ground water information. Accordingly, the Division's decision cannot stand.

## VII.

### **ACD's Permit Application is Unlawfully Incomplete Because it Fails to Investigate Whether an Aquifer Exists in the Dakota Formation That May be Adversely Impacted by Mining**

The geologic information in ACD's permit application is unlawfully incomplete because it does not include an investigation of whether an aquifer exists below the Smirl coal seam at a depth that may be adversely impacted by mining. Petitioners themselves do not know whether an aquifer is present in the Dakota Formation. The issue before the Board is whether ACD is required to **investigate** whether there **may be** an aquifer below the Smirl coal seam that **could be** adversely impacted by mining. Unquestionably, the Utah coal rules require ACD to conduct such an investigation, and ACD failed to do so.

The Utah coal rules prohibit approval of a permit application that is incomplete or that otherwise violates those rules. Utah Admin. Code § R645-300-133. The pertinent geology rules require that a permit application contain, **at a minimum**, a "description," "**samples**," and "**logs**" of the "geology of the proposed permit and adjacent areas down to and including **the deeper of** either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining." Utah Admin. Code §§ R645-

301-624, 624.100, 624.200, and 624.210 (emphasis supplied). The permit application submitted by ACD failed to include any of the required information.

ACD drilled only five boreholes into the Dakota Formation below the Smirl coal seam despite substantial evidence of a potential aquifer, including ancient water discharging from the Dakota Formation at a spring developed for stock watering in the permit's adjacent area. Despite this evidence of a potential aquifer, ACD drilled to a depth of between just two to seven feet below the Smirl coal seam, never deep enough to determine whether an aquifer exists in the several-hundred-foot thick, sandstone-dominated Dakota Formation at a depth that might be affected by mining operations. Moreover, ACD's permit application failed to include this information even though the Division acknowledged that there will be impacts to the Dakota Formation from mining operations that will fracture the rock below the coal seam and create additional pathways for water seepage. Exhibit P-48: Deposition Transcript, *In the Matter of Utah Chapter of the Sierra Club v. Division of Oil, Gas, and Mining* (Volume 1, Feb. 22, 2010), Testimony of James Douglas Smith (Feb. 22, 2010) at 116-18, 123-24 [hereinafter "Smith Deposition"]. Despite this acknowledgement, ACD's permit application failed to analyze the potential depth of impacts from blasting and stress release. Moreover, ACD's application did not include site-specific information on the lithology below the coal seam. Despite these deficiencies, the Division arbitrarily approved ACD's permit application for the Coal Hollow Mine.

**A. Overview of Applicable Permitting Requirements in the Utah Coal Rules**

The Utah coal rules prohibit approval of a permit application unless the "application affirmatively demonstrates and the Division finds, in writing, on the basis of information set forth in the application or from information otherwise available that is documented in the approval" that

all of the requirements of the State program are met and that the permit application is “complete and accurate.” Utah Admin. Code §§ R645-300-133 and 133.100. The Division violated these regulations both because ACD’s permit application was incomplete and because ACD’s application failed to comply with the applicable Utah coal rules.

The rules define an aquifer as “a zone, stratum, or group of strata that can store and transmit water in sufficient quantities for a specific use.” Utah Admin. Code § R645-100-200. An aquifer need not be found in a specific stratum, but can occur in a zone or group of strata wherein water can be stored and transmitted through underground geologic formations in sufficient quantities such that the water can be put to a specific use. This definition of an aquifer applies throughout the Utah coal rules.

In addition, the applicable geologic permit application sections of the Utah coal rules require that:

624. Geologic information will include, at a minimum, the following:

624.100. A **description** of the geology of the proposed permit and adjacent areas down to and including the **deeper of either** the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. The description will include the regional and structural geology of the permit and adjacent areas, and other parameters which influence the required reclamation and it will also show how the regional and structural geology may affect the occurrence, availability, movement, quantity and quality of potentially impacted surface and ground water.

Utah Admin. Code §§ R645-301-624 and 624.100 (emphasis supplied). Not only do the Utah coal rules require a **description** of the geology, the Rules also require that:

624.200 . . . **samples will be collected and analyzed** from test borings; drill cores; or fresh, unweathered, uncontaminated samples from rock outcrops down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. The analyses will result in the following:

624.210. **Logs showing the lithologic characteristics** including physical properties and thickness of each stratum and location of ground water where occurring.

Utah Admin. Code §§ R645-301-624.200 and 624.210 (emphasis supplied).

In sum, the relevant geology permitting requirements are: (1) a detailed description of the geology of the permit and adjacent areas down to and including the deeper of either the stratum immediately below the Smirl coal seam or any aquifer below the Smirl coal seam that may be adversely impacted by the proposed mining; (2) samples from test borings, drill cores, or rock outcrops down to and including the deeper of either the stratum immediately below the Smirl coal seam or any aquifer below the Smirl coal seam that may be adversely impacted by the proposed mining; and (3) an analysis of samples reported in logs that shows the lithologic characteristics of the geologic formations and the location of groundwater encountered during investigation of the material below the coal seam.

**1. The OSM Preamble Affirms the Requirement in the Utah Coal Rules that a Permit Application Must Include an Investigation of Whether an Aquifer Exists Below the Coal Seam Underclay That Could be Impacted by Mining**

The 1983 OSM preamble serves to “clarify the hydrologic and geologic requirements” of SMCRA. Exhibit P- 41:Surface Coal Mining and Reclamation Operations; Geology Permitting, 48 Fed. Reg. 43,956–62 (Sept. 26, 1983) (emphasis supplied)<sup>7</sup>. When interpreting and applying the Utah coal rules, the Board should look to the OSM preamble for guidance. *See De Baritault v. Salt Lake City Corp.*, 913 P.2d 743, 745 (Utah S.Ct. 1996) (stating that a “preamble is relevant in construing the legislature’s intent”). The OSM geology preamble states, in relevant part:

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<sup>7</sup> Exhibits offered and entered as evidence in the hearings held before the Board are indicated by the numbers by which they were marked at the hearings.

Commonly, the stratum immediately below a coal seam consists of very fine grained, sedimentary rock which has a low transmissivity or does not have the hydrologic properties necessary to transmit or yield ground water. This stratum may range in thickness from less than 2 feet to several feet and has been variously referred to locally as “underclay” or “fire clay.” Although this “underclay” or “fire clay” stratum is generally not considered an aquifer, the next lower (i.e., underlying) stratum commonly has improved hydraulic capabilities and may be an aquifer. Depending upon site geology and operating procedures, such an aquifer may have the potential of being adversely impacted by surface coal mining activities such as blasting, which may fracture any stratum between this aquifer and the coal seam . . . Therefore, the applicant has the responsibilities for determining the presence or absence of such an aquifer **below the coal seam** “underclay” and for assessing its potential for being adversely impacted by the mining activity.

48 Fed. Reg. 43,961–62 (emphasis supplied). The OSM preamble makes clear that an applicant must drill deeper than the underclay, which is described as the stratum immediately below the coal seam, ranging in thickness from two to several feet, and generally of low transmissivity - and into the next stratum below which may be an aquifer. *Id.* The geology sections of the Utah coal rules, read in conjunction with the OSM preamble, clarify that an applicant must drill below the underclay, **not simply into the underclay**, to determine whether an aquifer exists that could be impacted by mining.

#### **B. Factual Overview of ACD’s Incomplete Permit Application**

ACD drilled six boreholes, five of which extended into the Dakota Formation below the Smirl coal seam. Exhibit P-25: Mining and Reclamation Plan (“MRP”), Volume 6, Appendix 6-4. Of these five boreholes, two extended only two feet below the Smirl coal seam, two extended approximately four feet below the coal seam, and the deepest borehole extended seven feet below the coal seam. Exhibit P-25 at CH-06-05, CH-05-05, CH-03-05, CH-01-05, and CH-08. The permit application describes the materials encountered in the boreholes as “clayey siltstone,” “carbonaceous shale,” “organic siltstone/shale,” “siltstone,” silty shale,” “shale,” and “silty claystone/siltstone.”

Exhibit P-25 at CH-06-05, CH-05-05, CH-03-05, CH-01-05, and CH-08. These are precisely the types of materials that the OSM geology preamble describes as the underclay: “very fine grained, sedimentary rock which has a low transmissivity.” Hearing Transcript at 1356-57, 1360-61; 48 Fed. Reg. at 43,961. In addition, the geology preamble explains that this underclay is commonly two to several feet thick, within the depth that ACD drilled below the Smirl coal seam. *See* 48 Fed. Reg. at 43,961. Accordingly, ACD’s five bore holes appear to have extended into the underclay, but not below it.

ACD drilled only these five shallow boreholes despite evidence that there is likely an aquifer in the Dakota Formation that could be affected by mining. ACD reported that two seeps and a spring discharge from the Dakota Formation adjacent to the permit area. Exhibit D-1: MRP Chapter 7, Volume 7 at 7-4. Spring SP-4, located just over a mile south of the permit area discharges at a rate of nearly one gallon per minute, or approximately 1,400 gallons per day, every day of the year with little seasonal variability. *Id.* Spring SP-4 has been developed and is used for stock watering. *Id.* at Table 7-1, see also Exhibit P-37. The discharge of water from spring SP-4 demonstrates that at least one zone or stratum of the Dakota Formation below the Smirl coal seam “store[s] and transmit[s] water in sufficient quantities for a specific use,” and thus meets the definition of an aquifer in the Utah coal rules. In fact, the Division has agreed that the discharge from SP-4 and the other two seeps described in the permit application establishes that at least one stratum of the Dakota Formation can store and transmit water. Smith Deposition at 98-99, 115.

Furthermore, the only data supplied by ACD in the permit application lend support to the presence of an aquifer in the Dakota Formation. Isotopic sampling of the water from SP-4 indicates that the water discharging from the spring has been isolated from the surface for approximately

1,000 years.<sup>8</sup> Exhibit D-23: Alton/Sink Valley Cumulative Hydrologic Impact Assessment (Oct. 15, 2009) (“CHIA”) at 19. The results of this isotopic assessment are consistent with the presence of an aquifer in the Dakota Formation. Hearing Transcript at 1375, 1390-91, 1393-94.

In addition to the water discharging from the Dakota Formation at SP-4, water has also been documented discharging from the Dakota Formation in other locations directly adjacent to the proposed permit area. Hearing Transcript at 1376-77. During his site visit on May 11–12, 2010, Petitioners’ expert witness on geology observed that:

groundwater seeping from underneath the coal seam to be mine, the smirl coal seam . . . At that location [in Lower Robinson Creek adjacent to the permit area], there was water that was discharging. So it’s clearly being stored and transmitted. Again, at that location it was in sufficient quantities for—it would have supported wildlife use. It was being collected. So by all those criteria that are stated in the Utah coal rules, it would be an aquifer.

Hearing Transcript at 1377.

Geologic literature in the permit application also indicates that there is likely an aquifer in the Dakota Formation. The Tilton map and text included in the permit application describes the Dakota Formation as consisting “of interbedded . . . sandstone, . . . mudstone, . . . carbonaceous

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<sup>8</sup> ACD argues that because spring SP-4 discharges from an “apparent fault zone” in the Dakota Formation, the spring is not evidence of an aquifer in the Dakota Formation that could be impacted by mining. *See* Exhibit D-1: MRP Chapter 7, Volume 7 at 7-4; Hearing Transcript at 1436-37. This argument is meritless. First, the definition of an aquifer in the Utah Coal Rules is “a **zone**, stratum, or group of strata that can store and transmit water in sufficient quantities for a specific use.” Utah Admin. Code § R645-100-200 (emphasis supplied). Thus, even if spring SP-4 discharges from a **fault zone**, the fault zone would still fall within the definition of an aquifer in the Utah Coal Rules. Furthermore, ACD has supplied no data in the permit application to support its assertion that SP-4 discharges from a fault. Hearing Transcript at 1365. Geologic maps of the area surrounding SP-4 also do not indicate a fault at this location. Exhibit P-40: United States Geological Survey, National Geologic Map Database, Bald Knoll Quadrangle maps; Hearing Transcript at 1376. Finally, even if there were a fault associated with SP-4, this would not obviate the need to investigate whether an aquifer exists in the Dakota Formation at a depth that could be impacted by mining before approving the permit.

mudstone and coal, and some bentonite, with **sandstone dominating the total thickness at almost a 2:1 ratio.**<sup>9</sup> Exhibit P-23: MRP, Appendix 6-3, Geologic map of the Alton, Utah 7.5 minute quadrangle (Tilton 2001) at 14 (emphasis supplied). In fact, as the Tilton text included in the permit application states, “[t]he potential exists for ground water in sandstone aquifers in the subsurface Dakota Formation.”<sup>10</sup> Exhibit P-23 at 5. *See also* Hearing Transcript at 1385-86 (unlike shales and mudstones, sandstones tend to have higher transmissivity and may contain aquifers). There is no data in ACD’s permit application upon which the Division could have determined that seven feet is deep enough to investigate whether an aquifer exists in the Dakota that could be impacted by mining.

Indeed, the Division has previously determined, in conjunction with the 1988 coal mine permit application to mine the Alton coalfield, that the Dakota Formation may contain the first aquifer below the Smirl coal seam. Exhibit P-19 at 7; Hearing Transcript at 1388-89. In its 1980s determination, the Division cited the presence of a spring discharging from the Dakota Formation as evidence that the Dakota Formation may contain an aquifer below the Smirl coal seam that could be adversely impacted by mining. Exhibit P-19 at 7. In light of the potential existence of an aquifer in the Dakota Formation, the Division stated that “[b]orehole data is required to describe the lithology, extent, and depth of the [first aquifer below the coal seam].” *Id.*

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<sup>9</sup> Similarly, a less detailed, broader regional stratigraphic column and description from 1972 also described the Dakota Formation as containing sandstone materials: “Yellow-gray to brown, fine- to medium-grained sandstone alternating with gray shale, sandy shale, carbonaceous shale, and *coal*.” Exhibit D-1: MRP Appendix 6-4, Core drilling results and borehole locations, Volume 6, Drawing 6-10.

<sup>10</sup> ACD cannot rely, as it does in its pre-hearing brief on hydrology issues, on its unsupported assertion that the Navajo Aquifer is the first aquifer below the coal seam without conducting an investigation into the Dakota Formation to obtain data to show whether or not an aquifer exists in the Dakota Formation. *See* ACD’s Pre-Hearing Memorandum at 2.

The reasoning and requirements noted by the Division in its 1988 determination apply with equal force to ACD's current permit application. The current proposal, just like its predecessor, recorded water discharging from a spring in the Dakota Formation. ACD's current permit application does not contain any new data that might support a result different from the Division's 1988 determination. At the very least then, especially given the presence of a Dakota Formation spring, ACD was obliged to investigate whether there is an aquifer in the Dakota Formation that could be impacted by mining.

Taken together, the presence of seeps and springs arising from the Dakota Formation south of the permit area, seepage below the coal seam adjacent to the permit area, the background geologic literature included in the permit application, and the Division's 1988 determination that an aquifer may be present in the Dakota Formation below the Smirl coal seam all indicate that an aquifer may exist below the coal seam to be mined. In light of ACD's failure to even **look** for an aquifer—especially given these significant facts suggesting an aquifer—the Division approval of ACD's permit application was arbitrary, capricious and in violation of the Utah coal rules.

**1. If There Is an Aquifer in the Dakota Formation, It Could Be Adversely Impacted by Mining**

As explained in the preceding section, the five boreholes that ACD drilled below the Smirl coal seam stopped only a few feet below the coal seam, despite the requirement that ACD drill deeply enough to determine whether there is an aquifer that could be adversely impacted by mining. An aquifer could exist in the Dakota Formation at any depth below that which ACD stopped drilling. Smith Deposition at 111; *see also* Hearing Transcript at 1386. An aquifer could exist in the Dakota Formation underneath the permit and adjacent areas at eight feet, twenty feet, fifty feet, or more,

below the coal seam and still be at a depth where ACD's mining operations might adversely affect groundwater resources. Smith Deposition at 111; Hearing Transcript at 1386-87.

Indeed, the Division concedes that whether or not there is an aquifer in the Dakota Formation, the Dakota Formation itself will be adversely affected by mining. In its final Technical Analysis, the Division noted that the Dakota Formation below the coal seam "will be exposed through mining and may become saturated as a result of mining." Exhibit D-8: Division of Oil, Gas, and Mining, Technical Analysis (Oct. 15, 2009) at 135; Hearing Transcript at 1378-80, 1424. In addition to saturation, the Division conceded that both blasting at the mine site and stress release may fracture and thus, adversely impact, the Dakota Formation. Smith Deposition at 116-18. Fractures and saturation will permit precipitation, snow melt, and possibly other materials to flow from the exposed surface of the Dakota Formation through fractures to underground water resources and affect the quantity and quality of any aquifers that exist. *See, e.g.*, Smith Deposition at 123-24. Such disturbance could affect both the quality and quantity of groundwater resources, including the water that is currently discharging at SP-4. Aware of such possibilities, the Division agrees that if there is an aquifer in the Dakota Formation it could be adversely impacted by mining. Smith Deposition at 109.

Although evidence points to the existence of an aquifer in the Dakota Formation, the question is not whether there is an aquifer in the Dakota that will be adversely impacted by mining. The question is simply whether there **could be** an aquifer in the Dakota that **could be** adversely impacted by mining. The Division acknowledged that there will be impacts to the Dakota Formation from blasting and stress release that will fracture the rock below the coal seam and create additional pathways for water seepage when the mine pits become saturated after backfilling, as the permit

application admits they will. Smith Deposition at 116-18; Exhibit D-8 at 135. Nonetheless, ACD's permit application failed to include an analysis of the depth of impacts from blasting and stress release, nor did it include site-specific information on the lithology below the coal seam. ACD did not drill deeply enough that a reasonable hydrogeologist, without having information on the depth of fractures related to mining, could confirm the absence of an aquifer that could be impacted by ACD's mining operations.

**C. The Division Unlawfully Approved ACD's Incomplete Permit Because the Application Did Not Describe the Underground Geology as Required by the Utah Coal Rules**

ACD failed to describe the underground geology as required by the Utah coal rules. Utah Admin. Code § R645-301-624.100. As previously explained, the Utah coal rules require a geologic "description" under the proposed permit and adjacent areas down to and including the deeper of any aquifer below the coal seam that may be impacted by mining or the stratum below the coal seam. Utah Admin. Code §§ R645-301-624.100 and 624.100. The OSM preamble makes clear that the Utah coal rules require an investigation below the coal seam underclay and down to the next underlying stratum or any aquifer that may be adversely impacted by mining. 48 Fed. Reg. 43,956–62. Contrary to this requirement, ACD drilled to neither the stratum immediately below the coal seam underclay, nor any aquifer below the coal seam with may be adversely impacted by mining. *See* Exhibit P-65: Appendix 6-4: Core Drilling Results and Borehole Locations (showing that the boreholes were not drilled below the underclay to a depth that would show whether an aquifer exists in the Dakota Formation that could be impacted by mining).

The Utah coal rules go on to explain that the required geologic description must "include the regional and structural geology of the permit and adjacent areas, and other parameters which

influence the required reclamation and it will also show how the regional and structural geology may affect the occurrence, availability, movement, quantity and quality of potentially impacted surface and ground water.” Utah Admin. Code § R645-301-624.100. ACD’s permit application contains only regional scale stratigraphic columns and descriptions of the Dakota Formation. Exhibit P-43; Exhibit D-1: MRP Appendix 6-4, Core drilling results and borehole locations, Volume 6, Drawing 6-10. These stratigraphic columns and descriptions are general characterizations of the Dakota Formation in the area around the Alton coal field and Alton quadrangle rather than a specific description based on investigation and data of the Dakota Formation underlying the proposed permit area. Smith Deposition at 115, 118; Hearing Transcript at 1299-1302, 1458, 1459-61.

Indeed, the permit application does not contain any data from investigations into the Dakota Formation below the permit and adjacent areas. In violation of the Utah coal rules, ACD’s permit application fails to describe the regional and structural geology below the permit and adjacent areas and any other parameters which influence the required reclamation. *See* Utah Admin. Code § R645-301-624.100. In further violation of the Utah coal rules, the permit application does not contain any data pertaining to the effects that the regional and structural geology may have on the occurrence, availability, movement, quantity and quality of the potentially impacted surface and ground water. *See* Utah Admin. Code § R645-301-624.100; Smith Deposition at 120.

**D. The Division Unlawfully Approved ACD’s Permit Because ACD Failed to Sample, Analyze, and Create Logs of the Underground Geologic Characteristics and Groundwater As Required By the Utah Coal Rules**

Not only did ACD’s permit application fail to describe the geology of the proposed permit and adjacent areas down to and including the deeper of the stratum below the Smirl coal seam or any aquifer in the Dakota Formation that could be impacted by mining, ACD further violated the Utah

coal rules by failing to collect “samples” from test borings, drill cores, or rock outcrops down to and including the deeper of the two. *See* Utah Admin. Code § R645-301-624.200. As described above, ACD did not submit any data describing the geology below the proposed permit and adjacent areas as required by the Utah coal rules. Because ACD did not conduct the required investigation of the Dakota Formation below the underclay, ACD obviously also did not collect samples of any potentially impacted stratum or aquifer.

In addition to samples, the Utah coal rules also require “analyses” of the samples that result in “[l]ogs showing the lithologic characteristics including physical properties and thickness of each stratum and location of ground water where occurring.” UTAH ADMIN. CODE §§ R645-301-624.200 and 624.210. Because ACD did not collect samples, it failed to analyze any materials or create any logs describing the groundwater or the lithologic characteristics of the underground materials down to the required depth. *See* UTAH ADMIN. CODE §§ R645-301-624.200 and 624.210. ACD’s permit application contains logs from just two of the six total boreholes it drilled, and only one of the logs, for borehole CH-8, reports data below the coal seam. P-25 at Drilling Log CH-7, CH-8. In addition, the CH-8 log fails to report whether the two feet of the Dakota Formation encountered was wet or dry, even though ACD reports this information for all the other lithologic descriptions above and including the Smirl coal seam. P-25 at CH-8.

For these reasons, the permit application entirely fails to meet the requirements in R645-301-624.210 that require an analysis of samples, reported in logs that describe the lithologic characteristics, including physical properties, thickness, and wetness where occurring, from drill cores down to the deeper of any aquifer that may be impacted by mining or the next stratum below the coal seam. Because ACD’s permit application failed to include the samples, analysis, and logs

required by R645-301-624.200 and 624.210, its permit was unlawfully incomplete and the Division, in approving the permit, violated the Utah coal rules.

In sum, because ACD failed to investigate whether an aquifer exists in the Dakota Formation below the coal seam to be mined that could be adversely impacted by mining, the permit application submitted by ACD and approved by the Division was fatally incomplete. Accordingly, Petitioners respectfully request that the Board remand the permit to the Division for compliance with the Utah coal rules.

### VIII.

#### **The Division's Regulations Unambiguously Require the Division to Evaluate the Adequacy of the Fugitive Dust Control Plan Including Monitoring Prior to Approval of the Coal Hollow Mine Permit**

Before approving a coal mine permit, the Division must ensure that the permit application contains a fugitive dust control plan that includes “an air quality monitoring program to provide sufficient data to evaluate the effectiveness of the fugitive dust control practices . . . to comply with federal and Utah air quality standards.” UT ADC R645-301-423.100. The Division failed to do so. The Division explicitly acknowledged that it “does not have the expertise to evaluate the use of method 9.” Email from Priscilla Burton to Jon Black re. Fugitive Dust Plan (Oct. 13, 2009) [D.7]. Lacking the necessary expertise, the Division failed to complete the evaluation required by UT ADC R645-301-423.100 that the monitoring program would provide “sufficient data.”

While it makes sense that the Division of Oil, Gas and Mining might turn to its sister agency – the Division of Air Quality – in conducting an evaluation of air quality monitoring, such evaluation must occur *before* the Division's approval of the Coal Hollow Mine permit. Here, it did not. Any action taken after approval of the Coal Hollow Mine's permit cannot excuse the failure

of the Division to ensure the adequacy of the air quality monitoring before approving the permit as required by the Division's own regulations. *See* UT ADC R645-301-423.100; UT ADC R645-300-133 (requirement of written findings based on information in application or otherwise documented in permit approval). *See also* Petitioners' Post-Hearing Brief (May 12, 2010) at 2-6.

Any right to appeal an air quality permit issued by the Division of Air Quality cannot excuse the Division of Oil, Gas and Mining's failure to follow the unambiguous language of its own regulations. If the Division of Oil, Gas and Mining wants to rely on the expertise of the Air Quality Division, it must wait until the Air Quality Division completes its evaluation of the air quality monitoring before approving the Coal Hollow Mine permit. The Division's failure to do so here rendered its permit approval unlawful.

#### **Appropriate Remedy**

The statutory and regulatory directive that the Division violated in each of the respects just discussed required the Division to withhold approval of ACD's permit application unless and until the application became complete and accurate and the Division rationally finds that ACD's operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The appropriate remedy for the Division's violation of this directive is to vacate the action that was unlawfully done and remand this matter to the Division with instructions (1) to demand that ACD submit the additional materials identified below and (2) to thereafter perform a CHIA based on established material damage criteria that include each applicable Utah water quality standard for each previously stated parameter of concern. In particular, Petitioners urge this Board to instruct the Division as follows:

1. to formulate appropriate material damage criteria for each previously stated parameter of concern with respect to the Coal Hollow Mine, including at a minimum any applicable Utah water quality standard that may exist for each parameter of concern;
2. to require that ACD supplement the hydrologic monitoring plans in the permit application with statements, formulated in accordance with the principles announced in the SOCM decision, of how the monitoring data may be used to determine the impacts of the Coal Hollow Mine on the hydrologic balance;
3. to require that ACD supplement the operations plan set forth in its permit application with a statement of remedial measures that the company will take to address material damage to the hydrologic balance as the result of exceedence of each material damage criterion that the Division establishes for the Coal Hollow Mine;
4. to require that ACD comply with the permitting requirements for operations that may affect an alluvial valley floor;
5. to require that ACD revise its surface water monitoring plan to establish and maintain monitoring stations in Lower Robinson Creek at each permit boundary and to conduct a full surface water monitoring program at each station no less frequently than at any other monitoring station in the program;
6. to require that ACD collect a full complement of baseline ground water data from the discharge of each seep or spring in the bed or banks of Lower Robinson Creek prior to requesting a decision on its permit application following remand;

7. to require that ACD conduct a competent investigation of the existence of an aquifer or aquifers in the Dakota Formation down to such depth as the Division may reasonably determine may be affected by ACD's proposed operations;
8. to require ACD to make such revisions to its permit application as the additional information and analyses described above may require or warrant; and
9. to require the Division either to make appropriate air quality findings prior to approving ACD's permit application following remand or to withhold such approval until the Air Quality Board has provided all required assistance.

Additionally, Petitioners request that the Board award them reasonable attorney and expert witness fees for their prosecution of this request for agency action.

**Conclusion**

For the reasons stated above and in prior pleadings filed with this Board, Petitioners request that the Board grant the relief just described.

**Dated: June 23, 2010**

Respectfully submitted,

By:



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## **EXHIBIT 1**

July 30, 1998

SAVE OUR CUMBERLAND	:	NX-97-3-PR
MOUNTAINS, INC.,	:	
	:	
Petitioner	:	Application for Permit Review
	:	Permit No. 2959
	:	
v.	:	
	:	
OFFICE OF SURFACE MINING	:	
RECLAMATION and ENFORCEMENT,	:	
and SKYLINE COAL COMPANY,	:	
	:	
Respondents	:	
	:	

### **DECISION**

Appearances: Walton D. Morris, Jr., Esq., Charlottesville, Virginia, for Petitioner Save Our Cumberland Mountains, Inc.,

Charles A. Wagner III, Esq., Knoxville, Tennessee, for Respondent Skyline Coal Company,

Charles P. Gault, Esq., Knoxville, Tennessee, for Respondent Office of Surface Mining Reclamation and Enforcement.

Before: Administrative Law Judge Sweitzer

Skyline Coal Company (Skyline) submitted to the Office of Surface Mining Reclamation and Enforcement (OSM) an application for a permit to mine an area known as Big Brush Creek Number 2 mine site (BB2). OSM approved the application, as modified, and issued Permit No. 2959 to Skyline to mine BB2. Pursuant to § 514(c) of the Surface Mining Control and Reclamation Act of 1977 (SMCRA), 30 U.S.C. § 1264(c), 30 C.F.R. § 775.11, and 43 C.F.R.

§ 4.1361, Petitioner Save Our Cumberland Mountains, Inc. (SOCM) filed a Request for Review of OSM's approval of the application and issuance of the BB2 permit, alleging various deficiencies in the hydrologic monitoring plans. The cited statute and regulations require a hearing to be held within 30 days after submittal of the Request for Review and issuance of a decision within 30 days after the close of the hearing record. However, the parties waived both of these requirements and agreed that a decision should be issued within 60 days of the close of the hearing record.

Administrative Law Judge David Torbett presided over a hearing in the matter held September 3, 4, 5, 8, 9, 29, and 30 and October 1 and 2, 1997, in Knoxville, Tennessee. Recognizing that he was on the verge of retirement and would not be available to render a decision in the matter, Judge Torbett placed on the record at the end of the hearing his finding that all of the witnesses appeared credible based upon his observations of their demeanor (Tr. 1754).

Upon Judge Torbett's retirement, the matter was transferred to the undersigned for further handling and issuance of a decision. Posthearing briefs were then filed by the parties. The hearing record closed on June 3, 1998, upon receipt of the final posthearing brief from SOCM. The matter is now ripe for decision.

Having reviewed and considered the entire hearing record and the parties' briefs, I must conclude, for the reasons set forth below, that OSM's approval of the permit application should be upheld, except with regard to the application deficiencies identified herein, that the BB2 operations may proceed, subject to the condition that Skyline comply with the regulatory requirements of monitoring both surface water and groundwater at least every three months, and that a permit revision application to correct the deficiencies should be submitted by Skyline for comment from SOCM and for evaluation and approval, modification, or denial by OSM.

Contentions regarding errors of fact and law, except to the extent they are expressly or impliedly addressed in this decision, are rejected on the ground they are, in whole or in part, contrary to the facts and law or are immaterial.

#### Statement of Facts

On July 31, 1995, Skyline submitted its BB2 permit application to OSM (Skyline Ex. 20, Vol. IV, p. II-2). Prior to approval of the application, SOCM submitted comments to OSM regarding the application during the public comment period (Tr. 120, 913-15). SOCM did not mention the hydrologic monitoring plans in its comments (id.).

OSM sent to Skyline at least six deficiency letters which commented on the mining operation and reclamation and monitoring plans proposed in the application and which required Skyline to respond and make changes to the application (Skyline Ex. 20, Vol. IV, p. II-2; Tr. 112-14, 997). The letters and written responses are voluminous and were incorporated into the application (Tr. 113-14, 407-08). When OSM finally approved the application on April 3, 1997, more than 20 months after its submittal, the application was several thousand pages in length (Tr. 67; Skyline Ex. 20).

James Mottet, Skyline's President and Mine Manager, Timothy Slone, a professional engineer who spearheaded the development of the BB2 permit application as an independent contractor for Skyline, and Wayne Rosso, an environmental consultant with substantial experience relating to coal mining and water quality issues, each testified that they had never seen more information developed in support of a permit application (Tr. 976, 997, 1390-91, 1492-93). For

example, extensive exploratory drilling by Skyline provided unusually detailed information regarding the elevation and contours of the coal pit floor, according to several witnesses, including Robert Liddle, the OSM hydrologist responsible for evaluating the hydrologic aspects of the BB2 permit application (Tr. 74-76, 1015-18, 1271-72, 1413-14; OSM Ex. 7).

In its BB2 permit application, Skyline proposed to conduct area surface mining operations using a large dragline to mine the permit area from south to north (Tr. 52, 89-90). By cast blasting and dragline stripping, an initial swath of overburden is removed and then the underlying coal is extracted, creating an east-west trending pit several hundred feet in length (Tr. 52, 89-90, 991-92). The dragline is then repositioned immediately north of the newly created pit and the process is repeated until the entire area is mined (id.). The mining operations progress rather slowly as each pit takes approximately one month to mine (id.).

The BB2 mining operation is a continuation northward of mining operations in the area immediately south of BB2 known as the Big Brush Creek No. 1 mine site (BB1) (Tr. 794-95, 1003, 1012, 1352). There is no physical separation between BB1 and BB2 (Tr. 53). These areas are permitted jointly by the State of Tennessee under the National Pollutant Discharge Elimination System (NPDES) (Tr. 1007, 1009-10; Ex. 22). The NPDES permit is incorporated by reference and included in the BB2 permit application (Tr. 1003, 1005-06, 1010).

Adjacent to BB1 on the west and east, respectively, are two other Skyline mine sites known as the Gladly Fork Mine and the Pine Ridge East Mine (Tr. 51, 1228-29; OSM Exs. 4, 5, 6). These three mine sites (hereinafter collectively referred to as the "adjacent mine sites") are in various stages of reclamation (Tr. 45-47, 50-53).

Each of the adjacent mine sites and the BB2 site involve mining of the Sewanee coal seam in the Big Brush Creek watershed of southern Tennessee using similar methods (Tr. 45-47, 233-34, 281, 794, 991-92, 1038-42, 1044-45, 1483; OSM Ex. 3). OSM has a great deal of experience in permitting and monitoring mining operations in the Sewanee coal seam, as there are hundreds in the vicinity of BB2 (Tr. 45, 82-83).

The headwaters of Big Brush Creek begin approximately one mile north of BB2 (Tr. 48). The northernmost portion of the watershed, including BB2 and the adjacent mine sites, are located in the gently rolling terrain of the Cumberland Plateau, high within the Cumberland

Mountains at an approximate elevation of 2,000 feet (Tr. 47-48). Big Brush Creek flows south along the eastern border of BB2 and BB1 past its confluence with Glady Fork Creek south of BB1 and down to the Sequatchie River 14 miles distant and 1,200 feet below (Tr. 47-48; OSM Exs. 3, 5).

OSM determined in the Cumulative Hydrologic Impact Assessment (CHIA) section of the BB2 permit that the first order of drainage above the confluence of Big Brush Creek and Glady Fork Creek, including those creeks themselves, was not a material damage protected resource because the streams dry up during the summer, do not continuously support aquatic life, are not used by any other water users, and were mined prior to enactment of SMCRA (Tr. 48-49, 100-01, 109, 117, 335-339; Skyline Ex. 20, Vol. IV, CHIA, p. 53). A material damage protected resource is one which significantly insures the hydrologic balance and therefore should be protected from material damage (see id., pp. 4, 11).

Another water resource determined by OSM not to be a material damage protected resource is the formation and regional aquifer known as the Newton Sandstone, which lies 40-50 feet above the Sewanee coal seam throughout BB2 and therefore will be mined and disrupted by the BB2 operation (Tr. 49, 72, 367; Skyline Ex. 20, Vol. IV, CHIA, pp. 52-53). While this aquifer is capable of supplying water for domestic needs, the water budget shows it does not contribute significantly to the hydrologic balance (id., p. 53). The only water users of the Newton Sandstone are the owners of seven homesites with six wells located near the Hitchcox Cemetery approximately 2,000 feet northeast of the proposed BB2 active mining area (Tr. 49-50, 1046-47). Because the Newton Sandstone lacks reliability as a domestic water source, the State is beginning to develop a rural water district to supply water to users of the Newton Sandstone (Tr. 49-50).

The Sewanee Conglomerate aquifer lying below the pit floor is a material damage protected resource but is not expected to be impacted by the mining operation because it is not expected to receive significant amounts of recharge from the mine spoils, as it is hydrologically isolated from the Newton Sandstone and the coal seam aquifers by a shale unit (Tr. 70, 72; Skyline Ex. 20, Vol. IV, CHIA, pp. 35-36, 53, 62). Other material damage protected resources are the second and third order streams capable of sustaining aquatic life, including Big Brush Creek below the confluence with Glady Fork Creek (id., pp. 52-53).

The BB2 surface water and groundwater monitoring plans at issue are based upon the probable hydrologic consequences (PHC's) of the mining operation identified in the Probable Hydrologic Consequences (PHC) section of the permit application (Tr. 54-57, 291; Skyline Ex. 20, Vol. II, Item 44A). In addition to the PHC determination, Mr. Liddle reviewed nearly the entire permit application, including baseline hydrologic and geologic information from various sources (Tr. 114-16).

The PHC's include the potential for adverse effects (1) on water quality from oxidation of

pyrite materials in the backfill spoils if an adequate toxic materials handling plan (TMHP) is not implemented, (2) on water quantity in or near the wells of the Hitchcox Cemetery community from drawdown of the Newton Sandstone aquifer, and (3) on water quantity to the north and west of BB2 from dewatering associated with the drawdown of the Newton Sandstone aquifer and the shift of the groundwater divide to the west (Tr. 1525-28). The nature and extent of the monitoring plans and the hydrologic reclamation plan (HRP) were then tailored to the predicted risks (likelihood and significance of the potential adverse impacts) (see, e.g., Tr. 100, 1524-29).

To determine the PHC's, a model of the premining groundwater flow paths was developed from an extensive database of premining regional groundwater flow data developed during the 1970's using drill holes and wells (Tr. 77-78). The general premining groundwater flow through the Newton Sandstone was to the southeast towards the monitoring site SWIM-5 on Big Brush Creek (Tr. 74-76, 78, 1289-91). As the postmining water table begins to reestablish, lateral movement of water will be limited until low points in the pit floor are filled and water begins spilling over the ridges of the floor (Tr. 1289-91). Then the flow is expected to be more southerly (to the south-southeast) than the pre-mining flow based, in part, upon the unusually extensive drill hole data regarding the pit floor contours (Tr. 74-76, 78, 1289-93).

Using this drill hole data and a computer program to interpolate the distance and elevations changes between drill holes, a map of the pit floor contours and water flow patterns was developed that is very reliable, according to Mr. Slone (Tr. 74-76, 1018). The postmining groundwater flow is predicted to follow the general downdip of the coal pit floor to the south-southeast, passing through the southern most part of BB2 into BB1 and discharging in the vicinity of basin 003 on BB1 (Tr. 69-83, 123, 163-64, 1027-46, 1056-58, 1274-1306; OSM Exs. 6, 7; Skyline Exs. 25-A, 25-B, 25-C).

Mr. Liddle and Skyline's experts were very confident of the accuracy of the groundwater flow predictions (Tr. 72-83, 1298-1306, 1544). This high confidence level stemmed from several factors.

First, a regional map of the contours of the base of the Sewanee coal seam in a 64-square mile area 10 miles southwest of the Skyline mines had proved very reliable in predicting the location of groundwater discharges of mines within the area (Tr. 1538-44). Mr. Liddle explained that OSM has a proven track record of using this type of analysis to conceptually and accurately model groundwater flows for numerous mines in the area (Tr. 82-83). This thorough understanding of groundwater flow patterns in the area facilitated development of the ground water monitoring plans (id.). Because the coal pit floor contour map for BB2 was based on more detailed data than the regional map, Mr. Liddle had even more confidence in that map's predictive capabilities (Tr. 1543-44).

Second, the relatively impervious highwall surrounding the area to be mined is expected to divert to the south any microflows to the north, west, or east (Tr. 78-80, 267-81, 1032-44, 1289-93). This diversion is expected because of the disparity between the permeability of the highwall and the spoils. The lower portion of the highwall consists of the Whitwell shale that is essentially

impermeable (Tr. 78-80, 1292, 1475-76). Based upon values from relevant literature, its permeability was estimated to be less than 0.001 feet of water per day (Tr. 1280). The upper portion of the highwall consists of the Newton Sandstone with a permeability of approximately 1 foot of water per day, as determined by a pump test (Tr. 1279-80). In comparison, the permeability of spoil materials is estimated to be in excess of 133 feet of water per day based upon a pump test at one of the Glady Fork wells where the spoil materials are similar (Tr. 1278-79). Given these permeabilities, the groundwater is expected to be diverted southward, following the path of least resistance through the permeable backfill and down the slope of the coal pit floor (Tr. 78-80, 1038-42, 1044-45, 1315-16).

Third, OSM considered the possibility that water might travel through fractures in the eastern highwall but found that no significant fracturing was likely because the ground elevation was fairly level 150 feet from the creek and no significant fracturing was observed in the eastern highwall at BB1 (Tr. 302-03, 428-29).

Fourth, a buffer zone of a minimum of 300 feet will be left between Big Brush Creek on the east and the area to be mined (Tr. 102-03, 1013-14, 1315). The buffer zone provides added assurance that no significant amount of water will travel through the eastern highwall via fractures in the Newton Sandstone or otherwise and that any groundwater travelling towards the creek will be diverted to the south because the buffer will decrease the hydraulic gradient to the east and present a lengthy travel path to the creek (Tr. 78-80, 102-03, 302-03, 428, 1315-18).

Fifth, additional assurance is provided by the creation of a "french drain" or "rubble zone" at the base of the eastern highwall. This drain, consisting of boulders, will increase the permeability of the spoils in the area, enhancing the flow of groundwater downdip to the south rather than through the eastern highwall and lowering the water table near the highwall below the level actually predicted in the permit application, so that migration of water through the Newton Sandstone to the creek is even less likely (Tr. 80-81, 302-03, 426-27). In the application the water table is predicted to be below creek level in the northern one-third of the mine and at or a little above the creek level in the southern two-thirds of the mine (Tr. 425-26, 439-441, 447-49).

Sixth, the flow predictions were based upon a conceptual model of groundwater flow developed for the Glady Fork Mine that had proved accurate (Tr. 263-64, 267-81, 1038-45, 1300-05). That model predicts that under saturated flow conditions in the backfill spoil, the groundwater flow on a macroscale will be dictated by the elevations and contours of the coal pit floor, flowing downslope until the water encounters a relatively impervious zone such as a high wall (Tr. 264, 273). The water will then flow along the high wall and discharge at a point with the least amount of head, generally the most permeable spot, either at a low point, through a fracture zone, or into a stream (Tr. 264, 274).

Because both the area to be mined out at BB2 and the mined out area of Glady Fork resemble bathtubs, a depression surrounded by relatively impervious sides (highwalls) with little fracturing, the ground water is expected to drain (exit) at the low points (Tr. 1032-1044). Data from monitoring wells at Glady Fork confirmed the accuracy of this model (Tr. 276).

OSM and Skyline also relied upon field data from Gladly Fork and the other adjacent mine sites to predict whether acid or toxic drainage would occur at BB2 and to develop a TMHP to avoid such drainage. OSM issued a permit to Skyline to begin operations at the Gladly Fork Mine in August 1987 (Tr. 637). The initial box cuts in the southern portion of Gladly Fork were left open and unreclaimed for 18 months or more (Tr. 1245).

Beginning in the summer of 1990 and during the early 1990's, Skyline experienced acid or toxic mine drainage problems at Pine Ridge East and Gladly Fork (Tr. 608-16, 621-632, 1125, 1136-37, 1440, 1554; Ex. 42). Water containing excessive levels of iron and manganese was discharging into Gladly Fork and Big Brush Creeks, leading OSM to issue several Notices of Violation (NOV's) to Skyline (Tr. 608-16, 621-632, 1125, 1136-37, 1440, 1241-42, 1439-40; Ex. 42). These non-complying discharges were discovered by visual observation, not monitoring (1127, 1129-30, 1136-38, 1141).

OSM and Skyline had not anticipated any such problems because, during testing of the overburden at Pine Ridge East and Gladly Fork, it had shown a high alkalinity sufficient to neutralize or minimize the formation of acid or toxic mine drainage from pyrite oxidation (Tr. 237-41, 1454-55, 1552-54; Ex. 42). However, siderite minerals had masked its acid- and toxic-forming potential and its true, lower net alkalinity (Tr. 237-38, 1445-47). Consequently, OSM had not required lime amendment in the backfill or sufficiently contemporaneous reclamation to substantially minimize pyrite oxidation and the resulting elevated levels of iron and manganese in water entering streams from the mine sites (Tr. 233, 238-41, 1449).

In response to the first NOV issued in September of 1990 for non-complying discharges (seepages) into Gladly Fork Creek, Skyline drilled holes and dug wells to locate the source of the problem (Tr. 610-11, 1243, 1439-41). Within two months the seepages were eliminated by methods including pumping some of the new wells to dewater the problem areas (Tr. 610-11, 1441-44). Dewatering wells were also used at Pine Ridge East to eliminate the acid/toxic mine seepages (Tr. 234, 245).

By using testing to account for siderite masking, Skyline also discovered the acid- and toxic-forming potential of the overburden (Tr. 1445-47). Prompted by this discovery as well as the September 1990 NOV requirement to develop a long-term mitigation plan to address the impacts to Gladly Fork Creek, Skyline developed a proposed TMHP to minimize acid/toxic mine drainage during future mining at Gladly Fork (Tr. 1445-49; Ex. 42).

OSM eventually issued a Cessation Order (CO) rather than approving the proposed TMHP (Ex. 42). Skyline applied for relief from the CO and OSM then submitted the TMHP to a team of experts from its Eastern Support Center (ESC) for re-evaluation (Ex. 42). They concluded that the TMHP would prevent acid/toxic mine drainage (Ex. 42). At a lengthy administrative hearing regarding the CO, OSM sought to discredit the proof from its own ESC experts and the presiding administrative law judge, Judge Torbett, concluded that the TMHP would not work (Ex. 42). Skyline appealed to Federal district court and the court concluded, based upon the "overwhelming expert testimony" that the TMHP would work and enjoined enforcement of the CO (Ex. 42, pp. 12-

13).

A nearly identical TMHP for BB1 was found to be approvable by Judge Torbett after a lengthy administrative hearing in which four OSM-selected independent experts concluded that the TMHP would work (Tr. 1485, 1488-89). The permit application for BB1 was approved in 1993.

The six elements of the Gladly Fork TMHP are: (1) contemporaneous reclamation, (2) selective handling of the potentially acid- and toxic-forming materials, (3) compaction of such materials, (4) lime amendments, (5) inundation of such materials on the coal pit floor, and (6) hydrologic routing (Tr. 1460). Contemporaneous reclamation is important to minimize the exposure of the potentially acid- and toxic-forming materials to water and oxygen, the agents which either flush out the materials or facilitate the formation of acid and the mobilization of toxic metals through pyrite oxidation (Tr. 1449-50, 1453-54). Those materials are coal cleanings on the pit floor and lenticular sandy shale, which either break down easily or are already broken down and thus are more susceptible to being acted upon by the water and oxygen (Tr. 1450).

Selective handling involves leaving the coal cleanings on the pit floor deep within the backfill and placement of the other problematic materials (primarily the lenticular sandy shale within the Whitwell Shale overburden) on the dragline benches (Tr. 1246, 1455-58; Skyline Ex. 20, Vol. IV, CHIA, pp. 72-73). The materials are then compacted to minimize water infiltration and flushing of the materials (Tr. 1455-58). Lime amendments are concentrated in those areas to neutralize the acidity from any pyrite oxidation (Tr. 1450-51). Inundation of the materials at the pit floor minimizes the materials' exposure to oxygen, as the water deep within the backfill has less than 1% oxygen (Tr. 1456). Finally, cast blasting results in the distribution of sandstone boulders at the bottom of pit, forming east-west trending drains (areas of higher permeability) which tend to route the water (Tr. 1458-60).

The TMHP was eventually incorporated into the Gladly Fork permit and the Pine Ridge East permit was also revised to include such a plan (Tr. 632). Thereafter, no further acid or toxic drainage problems have occurred at any of the adjacent mine sites (Tr. 631-36, 1025, 1481, 1489).

A similar TMHP with the same six elements was incorporated into the BB2 permit (Tr. 1245-48). The need for the TMHP was demonstrated by substantial premining drilling to determine the geochemistry of the area (Tr. 83-88; OSM Ex. 5; SOCM Ex. 28).

The drilling showed that the potentially acid- or toxic-forming materials are distributed sporadically in clusters (Tr. 85-86). This type of distribution is consistent with how it is distributed throughout the area of the Sewanee coal seam (Skyline Ex. 20, Vol. IV, CHIA, p. 72; Tr. 86). Mr. Liddle observed that most or the worst of the problematic material was clustered in the southern one-half or one-third of BB2 in the path of the projected groundwater flow (Tr. 86-89, 126-27, 1557-60).

The goal is to place at least 90% of the potentially acid- or toxic-forming materials (other than the coal cleanings) on or below the dragline bench horizon, with approximately 60 percent used to construct the dragline benches and 30-40 percent cast blasted deep into the pit below the benches

(Tr. 1246-47; Skyline Ex. 20, Vol. II, Item 44B).

The distribution of lime amendments will be one-third on the dragline benches, one-third on the pit floor, and one-third at the spoil/topsoil interface (Tr. 1246). The concentration of the lime amendments will be determined by analysis of the coal cleanings and of holes to be drilled premining on 625 foot centers which will intercept the Whitwell Shale overburden and pit floor (Tr. 1246-47; Skyline Ex. 20, Vol. II, Item 44B).

Compaction of the bench pads is designed to create a backfill layer which is less permeable than the spoil and/or blast-cast overburden, limiting infiltration of water through the acid-producing materials below the bench pads and temporarily perching and charging groundwater with alkalinity from the limestone applied to the bench pads (id.). The more pervious zone between the bench pads will channel infiltrating water past the potentially acid-producing material placed below the bench pads (id.).

Drain structures will also be created in the basal sections of the backfill which will connect to sandstone rubble zones established along the ends of the pits (id.). The purpose of the structures is to ensure groundwater flow continuity and maintenance of postmine water table levels well below the projected elevation of the spoil-side dragline bench horizon within the backfill to keep the majority of the acid-producing material free of prolonged contact with the groundwater (id.). However, for some of the acid-producing material (the coal cleanings on the pit floor), inundation is contemplated as a method of minimizing contact with another agent of pyrite oxidation: oxygen (id.).

OSM relied in various ways upon monitoring data and experience from the Gladly Fork Mine in evaluating and approving the BB2 permit application (Tr. 264, 267-72, 278-83, 1528-29). First, Gladly Fork water quality data was used to model and predict BB2 water quality because the mining method, TMHP, and geochemical characteristics of the overburden at Gladly Fork were similar to those identified in the BB2 permit application (Tr. 268, 278-83; Skyline Ex. 20, Vol. II, Item 44A, pp. 38-43, 68-70, Item 44B, p. 6 (limeamend/02-21-97), Appendix 44B-A, pp. 44B-A-10, 44B-A-11). However, reliance upon the Gladly Fork data resulted in conservative projections of the postmining water quality of BB2 because (1) most of the Gladly Fork overburden was potentially acid- or toxic-forming, whereas the overburden at BB2 was more variable in its acid- or toxic-forming potential, with less problematic material overall (Tr. 283), and (2) the Gladly Fork pit was left open to the elements for long periods rather than being contemporaneously reclaimed.

OSM looked at data from Gladly Fork monitoring wells in areas with lime amendments (wells OW-8 and OW-9) and areas without lime amendments (the southern portion which was mined before development of the TMHP) (Tr. 279, 282). Particular reliance was placed on data from well OW-8 at Gladly Fork which showed, according to Skyline and OSM, favorable water quality trends (Skyline Ex. 20, Vol. II, Item 44A, pp. 68-70, Item 44B, p. 6 (limeamend/02-21-97), Appendix 44B-A, pp. 44B-A-10, 44B-A-11). The area around OW-8 is most similar to BB2 in its overburden characteristics and was reclaimed in a manner similar to that proposed under the TMHP for BB2

(Skyline Ex. 20, Vol. II, Appendix 44B-A, p. 44B-A-10). Data from well OW-9, despite being located in an area left open and unreclaimed for a considerable period, was also interpreted as displaying favorable water quality trends and acceptable pH levels (Skyline Ex. 20, Vol. II, Item 44B, pp. 6 (limeamend/02-21-97), Appendix 44B-A, p. 44B-A-10). In general, the water quality trends were viewed as favorable, indicating that the TMHP was working (Tr. 1024-25, 1213, 1518, 1528-29).

OSM relied upon monitoring data from wells in the unlined southern portion of Glady Fork, such as well OW-5, and similar wells at Pine Ridge East as evidence of a worse case scenario (Tr. 207-10, 223-24, 230, 234, 245, 280-83). Mr. Liddle opined that the data showed no acid mine drainage would be expected even without lime amendments (Tr. 210). It also showed that the water quality tends to be poorest immediately after drilling the spoil well and then improves (Tr. 210).

Second, OSM relied upon results of a November 1996 backfill pumping test at Glady Fork (1,000 gallons per day per square foot) to project the permeability of the backfill at BB2 and the anticipated groundwater characteristics (Tr. 268). Third, as previously mentioned, the method of projecting groundwater flow paths for BB2 is nearly identical to the method used for Glady Fork (Tr. 264, 269).

Fourth, Glady Fork field observations and well data led to the conclusion that the ponding of water on the dragline benches would not be substantial (Tr. 270-72). Mr. Riddle observed that rainfall on unreclaimed areas of the dragline bench at Glady Fork did not pool up substantially (Tr. 270-71). He also noted that data from a well OW-6 on a dragline bench at Glady Fork showed that the reclaimed bench was dry (Tr. 270-72, 277).

OSM also relied upon groundwater flow and favorable monitoring data from BB1 (Tr. 979, 1025-26, 1404, 1489-92, 1528-29, 1534-35, 1550-51). The value of the data from Glady Fork and BB1 for predicting the PHC's at BB2 was recognized even by SOCM's experts (Tr. 889-91, 1631, 1643).

Because the geology, overburden geochemical characteristics, and proposed TMHP's for BB2 are similar to those for BB1 and Glady Fork, similar post-mining water quality is expected and this expectation was confirmed by analytical modeling (Skyline Ex. 20, Vol. II, Item 44A, pp. 38-43, 68-70; Tr. 278-81). As Mr. Liddle noted, "we had the best of both worlds: good models and good field data to support those models." (Tr. 1536)

Skyline and OSM also predicted the extent of the drawdown of groundwater within the Newton Sandstone to be caused by the proposed mining operation. Using a mod-flow model and assuming that the aquifer was confined with no recharge, Mr. Liddle predicted that the drawdown effects might extend as far as 4,000 feet from the boundaries of the area to be mined under a worse-case scenario (Tr. 1321-22). Skyline disagreed with his assumptions and conclusion; it calculated the drawdown effect within the Newton Sandstone to be only 500 to 1,500 feet (Tr. 1320-24).

The development and approval of the monitoring plans at issue were based upon these predictions of the consequences of the mining operation. They were developed by Mr. Liddle, Mr. Slone, and Darrell Nicholas, another consultant for Skyline (Tr. 1227-28).

As shown by OSM Exhibit 6 and Skyline Exs. 25-A, 25-B, and 25-C, the BB2 permit includes groundwater monitoring wells OW-1 and OW-4 on the eastern boundary, wells GWM-12 through GWM-15 in the backfill spoils in the area first to be mined and in the path of the projected groundwater flow, and wells GWM-16 and GWM-17 outside the northeastern boundary in the area of Hitchcox Cemetery. Established groundwater monitoring points under the BB1 and other permits are also identified as sites to be monitored as part of the BB2 ground water monitoring plan.

Although migration of any significant amount of groundwater through the eastern highwall is not anticipated, wells OW-1 (in the Newton Sandstone) and OW-4 (in the Sewanee Conglomerate) are located to detect such migration at the point where migration through the highwall is most likely (Tr. 101-03, 375-76, 1070, 1165-66, 1318-19, 1324). That point is where the hydrologic gradient towards Big Brush Creek should be greatest because it is a topographical low point of the pit floor, the postmining water table is predicted to be at its highest point above Big Brush Creek and the Newton Sandstone/Whitwell Shale interface, and the Newton Sandstone is much more permeable than the Whitwell Shale (Tr. 375-76, 1318-19, 1070-71, 1165-66, 1324). Water will pool at this low point very early in the mining process and therefore the wells will provide an early indication of whether groundwater will migrate through the eastern highwall (Tr. 1070-71).

Additionally, well OW-1 will monitor the extent of the drawdown in the Newton Sandstone as mining advances northward (Tr. 1310). It will also be used to detect the water quality of any water flowing eastward from the mine site into Big Brush Creek and to determine the hydraulic gradient in combination with well GWM-13 (Tr. 1310).

Wells GWM-16 and GWM-17 are also located in an area where significant effects to the hydrologic balance are not anticipated. They are designed to detect any drawdown effect upon the Hitchcox Cemetery community's half-dozen domestic wells within the Newton Sandstone (1310, 1320-24). Under the worse-case scenario developed by Mr. Liddle, these domestic wells 2,000 feet to the northeast would lie within the 4,000 foot range of the drawdown effect and would be seriously impacted (Tr. 1071-72). Mr. Liddle conceded, however, that he required placement of wells GWM-16 and GWM-17 out of an abundance of caution and that they were probably unnecessary (Tr. 72-73, 1320-25, 1527-29, 1532-33, 1560-63).

Of the wells located in the backfill spoils, GWM-13 and GWM-14 were located to intercept the groundwater from where it will first pool at the lowest elevation of the pit floor (Tr. 1061-62, 1307). Samples from these wells should be first available when approximately half of the BB2 area has been mined (Tr. 1063). Spoil wells GWM-12 and GWM-15 are located at the next lowest pit floor elevations where groundwater will next pool (Tr. 1062-63).

The four spoil wells were placed in these locations in the southern portion of the mine, where mining will first be completed, so as to obtain monitoring data as soon as possible (Tr. 88-89, 126-27, 1066-67, 1335-36). Their placement was also based upon the concentration of potential acid- or toxic-forming materials in those areas or areas upgradient therefrom and the fact that the majority of the groundwater flow would pass through those areas before leaving the site (Tr. 88-89, 126-27, 1062, 1066-67, 1307, 1335-36). Thus, the locations are the first points where any impacts of the operation on water quality would materialize (Tr. 1335-36).

Wells GWM-8, GWM-9, GWM-15, GWM-16, and GWM-19 listed on the BB1 permit are also part of the BB2 monitoring program (Tr. 1067-68, 1073-75, 1199-1201, 1306-08, 1579-81). Wells GWM-15, GWM-16, and GWM-19 are located at pit floor low points in the projected groundwater flow path as it leaves BB2 and enters BB1 (*id.*). The groundwater is expected to begin spilling south over an east-west trending structural divide along the border between BB2 and BB1 when the postmining water table reaches the elevation of 1730 feet (Tr. 1036, 1073-75, 1294-95). It is expected to discharge at or near basin 003 and GWM-16, the lowest area of BB1 (Tr. 1036). GWM-15, GWM-16, and GWM-19 will provide additional information as to the quality and quantity of water coming from BB2 (*id.*). GWM-15, in particular, was located, in part, to monitor the water level in the vicinity of the reconstructed stream traversing BB2 and BB1 (Tr. 1228). GWM-8 and GWM-9 are also located at pit floor low points but outside the permits in a previously mined area to detect the quality and quantity of any water that bypasses GWM-15 and GWM-16 on BB1 (Tr. 1074, 1270, 1308-09).

In developing the surface water monitoring plan, OSM considered which water resources were significant ones in need of protection (Tr. 99). Nevertheless, the plan provides for substantial

monitoring of surface water before and after entering Big Brush Creek to the east of BB2 and BB1, despite having found that this portion of Big Brush Creek along with the first order drainages above the confluence with Glady Fork Creek were not a material damage protected resource.

Monitoring site SWIM-1 is located upstream of the mine to detect the water quality in Big Brush Creek before any impact from BB2 (Tr. 104, 1311). Site SWIM-5 is located in Big Brush Creek adjacent to the southern end of the mine as far downstream as practical to determine the effects on the creek of any surface water inflow between SWIM-1 and SWIM-5 (Tr. 105-06, 1311). In addition, the BB2 permit incorporates by reference the NPDES permit which covers monitoring points for BB1 and BB2 combined (Tr. 1003-04, 1009-10; Skyline Ex. 11, 21). Those points include a monitoring site at the outflow of each of the numerous sediment ponds which collect surface drainage from the sites before it enters Big Brush Creek or Glady Fork Creek (Tr. 104-05, 109; OSM Ex. 6; Skyline Exs. 11, 21). Those ponds include several downstream from BB2, including ponds 003 and 004 where the groundwater is expected to discharge after passing through BB1 (OSM Ex. 6; Skyline Exs. 11, 21; Tr. 1036). Finally, there are sites SW-3, SW-4, SW-6, and SW-7 along Big Brush Creek (Tr. 109, 1311-12; Skyline Ex. 29).

## Discussion

### **I.**

#### **Jurisdiction, Scope of Review, and Standard of Review**

Before addressing SOCM's challenges to the hydrologic monitoring plans, the following issues must be addressed: (1) a jurisdictional issue raised by Skyline, (2) the scope of review, and (3) the standard of review. These issues are addressed conjunctively because the resolution of each issue is dependent, in large part, upon the same factor: that these proceedings are administrative, rather than judicial, in nature.

First, Skyline contends that SOCM's appeal should be dismissed for lack of jurisdiction because it failed to exhaust its administrative remedies by failing to object to or challenge the hydrologic monitoring plans during the permitting process when the public was afforded the opportunity to comment upon the permit application. It argues that SOCM may not raise an issue on appeal that was not presented to OSM during the permitting process because OSM and Skyline were thus denied the opportunity to resolve the issue.

Second, under the guise of limiting the scope of review of this proceeding to the scope of OSM's review, OSM makes a similar argument with regard to SOCM's failure to comment upon the monitoring plans during the permitting process. According to OSM, if materials are considered that OSM has not had an opportunity to review, the administrative hearing would become a continuation of the permit review and the administrative law judge would become the ultimate permit reviewer. OSM argues that this result was not envisioned by anyone, especially as an adversarial hearing is not conducive to correctly resolving matters of technical complexity routinely

considered during the permit review process.

Third, to the extent that OSM's permitting decision is based upon scientific or technical determinations, both Skyline and OSM argue for application of a deferential arbitrary and capricious standard of review. They further contend that great deference should be given to OSM's interpretations of the applicable statutes and regulations.

For the most part, these arguments are based upon a false premise: namely, that limitations restricting judicial review of administrative decisionmaking are applicable to an administrative law judge's review of an OSM decision. For instance, Skyline bases its jurisdictional contention upon application of the general principle of administrative law that a party may not advance a theory or raise an issue on appeal of an administrative agency's action that was not presented to the agency below. However, two of the three authorities cited to support application of this principle, McKart v. United States, 395 U.S. 185 (1969), and 2 Am. Jur. 2d Administrative Law § 578, require the exhaustion of administrative remedies as a precondition to seeking judicial, not administrative, review. Skyline has presented no valid authority for the proposition that the doctrine of exhaustion of administrative remedies applies under the circumstances of this case.

The only other cited authority for application of the doctrine is The Hopi Tribe v. OSM, Docket No. TU 6-3-PR (Aug. 15, 1986), excerpted in Surface Mining Law Summary, 424 ALJ., p. 2933 (Aug. 1996). In that case, the Hopi Tribe appealed an OSM decision approving a permit revision and raised matters on appeal that were not brought to OSM's attention when it approved the revision. Referring to those matters, Administrative Law Judge Morehouse suggested that the evidence should be limited to matters that were available to OSM at the time it made its decision. Id. at 11, 424 ALJ at 2935. This suggestion may be true, but it does not address the fact that matters available to or identifiable by OSM are not necessarily equivalent to matters brought to its attention (see below).

Further, this suggestion is dicta, as Judge Morehouse ultimately upheld OSM's decision because he found that the Hopi Tribe's arguments lacked merit. More importantly, Judge Morehouse's entire decision was vacated on appeal for lack of jurisdiction because the Hopi Tribe had not timely filed its appeal of OSM's decision. Hopi Tribe v. OSM, 103 IBLA 44, 46-47 (1988).

The following comments of the Interior Board of Indian Appeals, Office of Hearings and Appeals (OHA), U.S. Department of the Interior, are equally applicable to an administrative law

judge of OHA's Hearings Division:

The Board is not a reviewing court. It is part of the administrative body making the determination and is acting by specific delegation from the head of that administrative body. It, therefore, is not limited by statutes restricting judicial review of administrative decisionmaking. *See Walch Logging Co. v. Portland Assistant Area Director (Economic Development)*, 11 IBIA 85, 101, 90 I.D. 88, 96 (1983). The scope of review of administrative decisions by the Secretary has recently been discussed by the Interior Board of Land Appeals:

The Secretary, or an appeals board with authority to act as fully and finally as might the Secretary, is not so limited in the scope of appellate review and decisionmaking as to be *required* to affirm decisions by subordinate officers and employees merely because they are supported by "substantial evidence" or are perceived not to be arbitrary and/or capricious, particularly where a preponderance of the evidence leads to a different result. The Secretary, as chief executive officer of the Department with full supervisory powers, has plenary authority to review *de novo* all official actions and to decide appeals from such actions on the basis of a preponderance of the evidence in cases involving the exercise of discretion. Act of March 3, 1849; 9 Stat. 395. [See also 5 U.S.C. § 557(b).] The Secretary's inherent authority in this regard may not be diminished or constrained by those whose only authority derives from the delegated powers of the Secretary. Therefore, the scope of appellate review by or on behalf of the Secretary can be so limited only by the Secretary himself in a duly promulgated regulation, or by the Congress through enacted law. No such restraint on the scope of agency review has been imposed in cases such as this one. Therefore, the Board has a duty to consider and decide them "as fully \* \* \* as might the Secretary."

Pueblo of Laguna v. Ass't Secretary for Indian Affairs, 12 IBIA 80, 90 I.D. 521, 527 (1983) (quoting United States Fish & Wildlife Service, 72 IBLA 218, 220-221 (1983)); see also Wyoming Independent Producers Assn., 133 IBLA 65, 83 n.13 (1995).

In the present case, there is no statutory or regulatory limitation on the scope of the Department's review or jurisdiction. The pertinent authorities - SMCRA and the applicable regulations - do not limit access to administrative review to persons who have submitted pertinent comment on the underlying permit application or to issues brought to OSM's attention. Rather, SMCRA states, without qualification, that "any person having an interest which is or may be

adversely affected” by an OSM decision may seek administrative review. 30 U.S.C. § 1264(c); see also 43 C.F.R. § 4.1361.

Nor is there a basis for implying or interpolating such limitations on access to administrative review. Words may be interpolated in a statute only when the statutory language is equivocal or where literal interpretation leads to absurdity so gross as to shock the general moral or common sense. Hatfried, Inc. v. C.I.R., 162 F.2d 628, 631 (3<sup>rd</sup> Cir. 1947). Neither of the conditions for interpolation exist in the present case.

In other statutory provisions, Congress has shown that it knows how to limit the right of appeal to those persons who have participated in the proceedings from which appeal is sought. For instance, SMCRA expressly limits the right to appeal permitting decisions to Federal court to “any person with an interest which is or may be adversely affected who has participated in the administrative proceedings as an objector \* \* \*.” 30 U.S.C. § 1264(f) (emphasis supplied).<sup>11</sup> “Where Congress knows how to say something but chooses not to, its silence is controlling.” In re Haas, 48 F.3d 1153, 1156 (11<sup>th</sup> Cir. 1995).

In adopting proposed regulations governing review of permitting decisions, the Secretary has acknowledged the right of any adversely-affected person to challenge a permitting decision even if that person did not file comments during the permitting process.

It is true, as the commenter notes, that if a person does not file comments or participate in an informal conference under section 513(b) [30 U.S.C. § 1263(b)], he or she will not receive written notification of OSMRE’s decision on the application. Nothing in section 514(c) [30 U.S. C. § 1264(c)] requires that notice of OSMRE’s decision be given in a local newspaper or in the Federal Register, or both, in addition to notifying the applicant, as the commenter suggests, and we believe the commenter’s suggestion that this be done is both administratively cumbersome and legally inadvisable. Failure to receive such notification in no way vitiates the right of any person who is or may be adversely affected by an OSMRE decision to file a request for a hearing under section 514(c) [30 U.S.C. § 1264(c)]; it simply means he or she must take the initiative to monitor the regulatory authority’s decisionmaking. \* \* \* Placing this responsibility on those who do not file comments or participate neither discriminates irrationally against such persons nor deprives them of due process of law.

56 Fed. Reg. 2139, 2141 (Jan. 22, 1991) (emphasis supplied).

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<sup>11</sup> The Secretary has also shown that he knows how to limit the right of appeal to those persons who have participated in the proceedings from which appeal is sought. He has promulgated regulations using the same language to require States to afford limited access to judicial review of State permitting decisions. 30 C.F.R. § 775.13(a) and (b).

With respect to the issues which any adversely-affected person may raise, a limitation of issues to those brought to OSM's attention during the permitting process would conflict with OSM's duty to approve only those permit applications for which it finds, on the basis of information set forth in the application or from information otherwise available, that all the applicable requirements of SMCRA and the regulations have been complied with. See 30 U.S.C. § 1260(b); 30 C.F.R. § 773.15(c). Regardless of whether an issue of potential noncompliance is brought to OSM's attention, OSM is charged with ensuring that the applicant has complied with all statutory and regulatory requirements prior to issuance of a permit. See, e.g., id.; 30 U.S.C. § 1260(b); 30 C.F.R. §§ 778.10(a), 779.18(b), 780.2, and 780.10(a).

A limitation of issues to those brought to OSM's attention would also conflict with the principles upon which an agency's decision is evaluated. Generally, an agency is obligated to make a full and careful review of the relevant factors and available relevant data and to initiate necessary tests and studies. See The Sierra Club, 104 IBLA 76, 89 (1988); see also Natural Resources Defense Council, Inc. v. OSM, 4 IBAMA 4, 16 (1982) (in a hearing on petition for review of permit approval decision, reference may be made to all evidence that was available to OSM); Motor Vehicle Manufacturers Assoc. v. State Farm Mutual Automobile Ins. Co., 462 U.S. 29, 42-43 (1983) (agency must examine the relevant data). An agency decision may be set aside if it fails to consider relevant or important factors. See id.; Uintah Mountain Club, 112 IBLA 287, 289 (1990). The fact that information or concerns were not brought to OSM's attention during the permitting process does not mean that the information was not available or that the concerns were not relevant factors to consider.

With respect to permit applications, OSM must fully and carefully review the information in the application or otherwise available to ensure compliance with statutory and regulatory requirements. See 30 U.S.C. § 1260(b); 30 C.F.R. § 773.15(c). This process necessarily requires identification of potential noncompliance issues, relevant factors, and informational needs. OSM is authorized and obligated to require from the applicant additional data, information, or action, including additional monitoring, to ensure compliance. See 30 C.F.R. §§ 779.18, 779.19, 779.24(l), 780.16(a)(1), 780.21(b), (d), (i)(1), and (j)(3), and 780.22(c). These obligations persist, regardless of whether potential noncompliance issues, relevant factors, or informational needs are brought to its attention.

The issues raised by SOCM are indeed relevant concerns which OSM was duty bound to identify and consider. Those issues are addressed in detail below.

Having determined that SOCM's objections to the permit decision are within my jurisdiction and the scope of review, the standard of review must still be determined. As stated in United States Fish and Wildlife Service, the general rule is de novo review. 72 IBLA at 220-21.

Despite the broad scope of review (de novo review), the Interior Board of Land Appeals (Board) has recognized that "as a general rule we will not substitute our judgment for that of the experts employed by the Department to analyze facts and to make recommendations in their particular fields of expertise, in the absence of a showing that the decision is contrary to the evidence

of record or otherwise arbitrary or capricious.” National Organization for River Sports, 138 IBLA 358, 363 (1997); see also Woods Petroleum Co., 86 IBLA 46, 52 (1985) (“A determination by Departmental technical experts will not be set aside where it is not arbitrary or capricious, and is supported by competent evidence.”). Likewise, in the United States Fish and Wildlife Service case, the Board stated that “in certain classes of cases involving judgmental decisions by agency personnel who have special authority and/or qualifications to make such decisions, the Board may accord considerable weight or deference to such decisions if they are supported by substantial evidence, but they may be overcome, nevertheless, by a preponderance of countervailing evidence.” 72 IBLA at 221. “It is well settled that the Secretary is entitled to rely upon the expertise of his technical experts, and absent showing of error by a preponderance of the evidence, a mere difference of opinion with the expert will not suffice to reverse the reasoned opinions of the Secretary’s technical staff.” American Gilsonite Co., 111 IBLA 1, 33 (1989); see also Benson-Montin-Greer Drilling Corp., 118 IBLA 8, 12 (1991) (“A difference of opinion concerning the interpretation of the available information does not establish such error.”). Thus, to the extent OSM’s decision was based upon substantial technical analysis, it will not be set aside absent a showing of error, *i.e.*, a showing that it is contrary to the evidence or otherwise arbitrary or capricious.

SOCM argues that this deferential standard does not apply to matters arising under SMCRA because SMCRA, unlike other statutes governing Departmental activities, encourages private citizens to retain expert witnesses (in permit review proceedings) to insure that the decisions and actions of OSM are grounded upon complete and full information and comply with SMCRA. See 30 U.S.C. § 1275(e); 43 C.F.R. § 4.1294(b); H.R. Rep. No. 95-218, 95<sup>th</sup> Cong. 1<sup>st</sup> Sess. 89 (1977); S. Rep. No. 95-218, 95<sup>th</sup> Cong. 1<sup>st</sup> Sess. 59 (1977). According to SOCM, it makes no sense to encourage citizens to hire expert witnesses if administrative law judges are bound to defer to OSM experts when their opinions conflict with those of the private experts.

SOCM’s argument is rejected. SOCM cites no authority, and none could be found, that supports this argument. Encouraging private citizens to hire expert witnesses is not inconsistent with the standard of deferring to OSM’s technical analyses when differences of expert opinion arise, as private expert testimony may still be useful to show error in OSM’s analysis.

SOCM does cite several cases which allegedly show that the Board does not defer to OSM technical opinions. Natural Resources Defense Council, Inc. (NRDC) v. OSM, 89 IBLA 1, 92 I.D. 389 (1985); Clifford Mackey, 99 IBLA 285 (1987); Mr. and Mrs. William J. Hamilton, 105 IBLA 160 (1988). None of those cases are apposite and none address the issue of the appropriate standard of review to apply when OSM technical analyses are involved.

NRDC involved a petition for review of an OSM approval of a permit. The Board found OSM’s cumulative hydrologic impact study wanting because it contained virtually no discussion of the impacts of mining on groundwater. 92 I.D. at 405. It did not find fault with the technical analysis actually performed but with the absence of such analysis regarding groundwater. The Board also found that OSM had erred by approving the permit prior to the applicant’s submission of certain information. By permit stipulations OSM had required post-approval submittal of the information, but the governing regulations required submittal prior to permit issuance. *Id.* at 416-17.

Again, no fault was found with any technical analysis; the error was a matter of timing and procedure.

In the other two cases cited by SOCM, the Board simply addressed the issue of whether a disputed issue of material fact existed so as to require a hearing. The standard of review for determinations involving OSM technical analyses was not implicated because the Board did not engage in such a substantive determination.

OSM and Skyline assert that a similar deferential standard applies to OSM's interpretations of SMCRA and the implementing regulations promulgated by the Secretary. They repeatedly argue that deference should be afforded to long-standing practices of OSM arising out of such interpretations. The cases cited by Skyline and OSM in support of this assertion are simply inapposite, as they relate to judicial review of agency statutory and regulatory interpretations. An analysis of relevant authority requires rejection of this assertion.

In at least one pertinent case, the Board has reviewed de novo an OSM regulatory interpretation. Larosa Fuel Co., Inc. v. OSM, 134 IBLA 334 (1996). As SOCM points out, that case is now on appeal to the United States Court of Appeals for the Fourth Circuit and the Secretary has filed a brief supporting de novo review of OSM regulatory interpretations by the Board. West Virginia Highlands Conservancy, Inc. v. Babbitt, appeal docketed, Nos. 97-2559 and 97-2603 (4<sup>th</sup> Cir. Nov. 7, 1997). In that case the Conservancy has argued that the Board should defer to OSM's interpretation of a regulation. In response, the Secretary first noted that the Board speaks for the Secretary as his authorized representative and then argued in his brief:

Requiring superior authority within an executive agency to defer to its enforcement branch in interpreting the agency's regulation is simply not, as the Conservancy implies, analogous to that of a court in the judicial branch of the government deferring to an executive branch agency interpreting its own regulation. Rather, the fact that [the Board] does possess the authority to fully and finally decide issue[s] in administrative litigation before the Department suggests that no deference is due the enforcement arm of the agency [(OSM)]. This authority indicates that the adjudicative body is empowered to perform the function of interpreting the law applicable to cases before it.

See also Pueblo of Laguna, 90 I.D. at 527; Wyoming Independent Producers Assn., 133 IBLA at 83 n.13; Dvorak Expeditions, 127 IBLA 145, 151 n.5 (1993).

The Board's authority to speak for the Secretary is set out at 43 C.F.R. § 4.1, which lists the Board as a component of the Office of Hearings and Appeals (OHA), U.S. Department of the Interior, and provides that OHA "is an authorized representative of the Secretary for the purpose of hearing, considering, and determining, as fully and finally as might the Secretary, matters within the jurisdiction of the Department involving hearings, and appeals and other review functions of the Secretary." The Hearings Division, which is comprised of administrative law judges, is also listed as a component of OHA. Thus, an administrative law judge also speaks for the Secretary, occupying

a position of superior authority similar to that of the Board, and is likewise empowered to interpret the applicable laws without deference to OSM's interpretations.

In light of the foregoing, the repeated arguments of Skyline and OSM that deference should be afforded to OSM's customary or long-standing practices and interpretations are rejected. The substantive issues will be addressed de novo, except to the extent that substantial technical analysis is involved, without further reference to arguments regarding such practices or interpretations.

## **II.**

### **The Standards by Which a Permit Application's Form and Content Should be Evaluated**

30 C.F.R. § 780.21(i) mandates that each permit application shall include a groundwater monitoring plan and specifies content requirements for the plan. 30 C.F.R. § 780.21(j) contains a similar mandate and content requirements for a surface water monitoring plan.

SOCM challenges the validity of Skyline's hydrologic monitoring plans on four grounds. Before addressing the validity of the plans, a threshold issue raised by SOCM must be resolved: namely, what portion(s) of the permit application should be considered when evaluating the validity of the plans.

Items 62 and 63 of the application are entitled "Surface-Water Monitoring Plan" and "Ground-Water Monitoring Plan", respectively. SOCM argues that only those portions of the application contained or referenced in Items 62 and 63 may be considered part of the hydrologic monitoring plans to be evaluated.

According to SOCM, if components of monitoring plans are scattered throughout a permit application without reference thereto in the plans, then the plans will be indecipherable and inaccessible to members of the public, State agencies that interact with OSM, administrative law judges, and OSM officials other than the staff member(s) who conducted the permit review. SOCM argues that if the plans are so scattered, members of the public will be unable to exercise their rights to review and use monitoring plans in the manner Congress intended.

That intent is manifested at 30 U.S.C. § 1202(i), which provides that one of the purposes of SMCRA is to "assure the appropriate procedures are provided for the public participation in the development, revision, and enforcement of regulations, standards, reclamations plans, or programs established by the Secretary or any State under this chapter." Another purpose of SMCRA is to "assure that surface coal mining operations are so conducted as to protect the environment." 30 U.S.C. § 1202(d). These purposes are melded in Congress' statutory declaration that "the cooperative effort [of the Federal Government, States, and public] established by this chapter is necessary to prevent or mitigate adverse environmental effects of present and future surface coal mining operations." 30 U.S.C. § 1201(k).

Consistent with this declaration and the aforementioned purposes, the legislative history of SMCRA provides:

The success or failure of a national coal surface mining regulation program will depend, to a significant extent, on the role played by citizens in the regulatory process. The State or Department of Interior can employ only so many inspectors, only a limited number of inspections can be made on a regular basis and only a limited amount of information can be required in a permit or bond release application or elicited at a hearing.

\* \* \* \* \*

While citizen participation is not, and can not be, a substitute for government authority, citizen involvement in all phases of the regulatory scheme will help insure that the decisions and actions of the regulatory authority are grounded upon complete and full information.

\* \* \* \* \*

Thus in imposing several provisions which contemplate active citizen involvement, the committee is carrying out its conviction that the participation of private citizens is a vital factor in the regulatory program as established by the Act.

H.R. Rep. No. 95-218, 95<sup>th</sup> Cong. 1<sup>st</sup> Sess. 88-89 (1997); see also S. Rep. No. 95-128, 95<sup>th</sup> Cong. 1<sup>st</sup> Sess. 59 (1997).

Those provisions contemplating active citizen involvement include 30 U.S.C. § 1257(e) (requiring that a proposed permit application be made available for public inspection), 30 U.S.C.

§ 1263 (providing for public notification of the proposed surface mine, for public entity comment upon such applications during the review process, and for potentially adversely affected persons to file written objections to such applications), 30 U.S.C. 1267(f) (requiring that certain information be made available to the public), 30 U.S.C. § 1267(h) (allowing potentially adversely affected persons to report violations of SMCRA or failures to make adequate and complete inspections and requiring the regulatory authority to provide such persons with a written statement explaining any action taken in response to the report), and 30 U.S.C. § 1270 (allowing citizen suits to compel compliance with SMCRA).

The aforementioned purposes of SMCRA are not unlike those of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321-4361 (1988). The requirement of preparing an environmental impact statement (EIS) under NEPA serves two ends. “A properly prepared EIS ensures that federal agencies have sufficiently detailed information to decide whether to proceed with an action in light of potential environmental consequences, and it provides the public with information on the environmental impact of a proposed action and encourages public participation in the development of that information.” Oregon Environmental Council v. Kunzman, 817 F.2d 484, 492 (9<sup>th</sup> Cir. 1987).

In order to achieve these purposes, NEPA and the applicable regulations state that an EIS “shall be concise, clear, and to the point,” 40 C.F.R. § 1500.2(b), and contain a “detailed statement” regarding the environmental impacts of the proposed action and other topics, 42 U.S.C. § 4332(2)(c). See Minnesota Public Interest Research Group v. Butz, 541 F.2d 1292, 1299-1300 (8<sup>th</sup> Cir. 1976). Likewise, a coal mining permit application must be “clear and concise,” 30 C.F.R. § 777.11(a)(2), and must contain great detail regarding the environmental impacts of the proposed mining operation and other topics, see, e.g., 30 C.F.R. Parts 777, 779, and 780.

OSM uses this detailed information to make required findings and determinations, such as whether the applicant has complied with all requirements of the regulatory program, an assessment of the probable cumulative impact of all anticipated mining on the hydrologic balance, and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. See 30 U.S.C. § 1260(b). Recognizing the similarities between an EIS and OSM’s assessment of the probable cumulative impact on the hydrologic balance, Administrative Judge Irwin has stated:

Like an [EIS] (and for similar reasons), the assessment must “explain fully its course of inquiry, analysis and reasoning,” must contain “*reasoned* analysis in response to conflicting data or opinions on environmental issues” (italics in original), and “must not be so vague, general, and conclusory that it cannot form the basis for reasonable evaluation and criticism.” *Minnesota Public Interest Research Group v. Butz*, 541 F.2d 1292, 1299-1300 (8<sup>th</sup> Cir. 1976); *Environmental Defense Fund, Inc. v. Froehlke*, 473 F.2d 346 (8<sup>th</sup> Cir. 1972).

NRDC, 92 I.D. at 441, Irwin, A.J., dissenting.

Seeking guidance from precedent establishing content standards for an EIS need not be limited to the evaluation of the content of the probable cumulative impact assessment. Given the similarities in content and purposes between an EIS and the entire permit application, such precedent offers useful guidance in evaluating the content of the entire permit application, including the hydrologic monitoring plans.

In order for OSM and the public to reasonably evaluate and criticize such plans, the permit application must explain fully the course of inquiry, analysis and reasoning which led to the selection of the components of the plans and how those components may be used to determine the impacts of the operation upon the hydrologic balance and to assess whether the objectives for protection of the hydrologic balance are being met. This conclusion follows from the requirements of 30 C.F.R. §§ 780.21(i)(1), (j)(1), and (j)(2), 30 U.S.C. § 1267(b), and the aforementioned precedent.

Section 1267(b) gives OSM authority to require monitoring “[f]or the purpose of developing or assisting in the development, administration, and enforcement of [the regulatory program] or in the administration and enforcement of any permit \* \* \*, or of determining whether any person is in violation of any requirement of [the regulatory] program or any other [SMCRA] requirement \* \* \*.” In furtherance of these purposes, regulatory sections 780.21(i)(1), (j)(1), and (j)(2) require each plan to contain certain components. Each must provide for monitoring of parameters that relate to the objectives for protection of the hydrologic balance (*i.e.*, monitoring for noncompliance with SMCRA or the regulatory program), identify those parameters and the monitoring site locations, and describe how the monitoring data may be used to determine the impacts of the operation upon the hydrologic balance. An explanation of the selection and use of the parameters, site locations, and data is necessary to reasonably evaluate and criticize the monitoring plans’ ability to meet the purposes of section 1267(b), including detecting noncompliance, and the purposes of SMCRA, including encouraging informed public participation and protecting the environment from harm.

The fulfillment of this content standard does not necessarily require establishment of the rule for which SOCM advocates. The required explanation may be adequate regardless of whether the entire explanation is located or referenced in that portion of the application designated as the hydrologic monitoring plan.

Precedent regarding the content of an EIS once again provides useful guidance. A court reviewing an EIS must make a pragmatic judgment as to whether the EIS’s form, content, and preparation foster both informed decisionmaking and informed public participation. See Oregon Environmental Council, 817 F.2d at 492. The reviewing court may not flyspeck an EIS and hold it insufficient on the basis of inconsequential, technical deficiencies. *Id.* When reviewing a coal mining permit application, a similar judgment ought to be made regarding its form and content, being careful to avoid flyspecking and keeping in mind that the format of an application is left to the discretion of the regulatory authority, see 30 U.S.C. § 1257(b); 30 C.F.R. § 777.11(a)(3).

Establishment of a general rule to govern the form of presentation of information in permit applications, as SOCM urges, unnecessarily limits the discretion of the regulatory authority in a

manner that may amount to flyspecking in individual cases. At least one court has characterized general objections to the level of detail and form of presentation of information in an EIS as unwarranted flyspecking. Stein v. Barton, 740 F.Supp. 743, 749 (D. Alaska 1990). Application of the rule for which SOCM advocates is not warranted in general or in the present case, as the contents of the monitoring plans are intelligible from a review of the permit application (except to the extent that parts of the plans, such as monitoring sites, were omitted from the permit application entirely).

### **III.**

#### **The Substantive Issues**

In light of the evidence adduced at hearing, SOCM “presses” four objections to OSM’s approval of the hydrologic monitoring plans discussed in Parts III.A., III.B., III.C.1., and III.D. below (SOCM’s opening posthearing brief, pp. 1-2). The remaining issues are addressed in Parts III.C.2, III.E., and IV below. SOCM has the burden of going forward to establish a prima facie case and the ultimate burden of persuasion that the plans fail in some manner to comply with the applicable requirements of SMCRA or the regulations, or that OSM should have imposed certain terms and conditions that were not imposed. 43 C.F.R. § 4.1366(a)(2).

#### **A.**

##### **Each of the Monitoring Plans Does Not Comply with the Requirement To Identify the Site Locations at Which Monitoring Will Occur**

SOCM maintains that each of the hydrologic monitoring plans is defective because it fails to meet the regulatory requirement that the “plan shall identify the \* \* \* site locations” at which monitoring will occur. 30 C.F.R. § 780.21(i)(1) and (j)(1); see also 30 U.S.C. § 1267(b)(2). It is undisputed that the permit application (and NPDES permit which is incorporated by reference into the application) does not identify many site locations which OSM will use to determine the impacts of the BB2 mining operation on the hydrologic balance and to assess whether the objectives for protection of the hydrologic balance are being met. Those sites include 11 groundwater monitoring wells (GWM-8, GWM-9, GWM-12 through GWM-19 on the BB1 permit, and OW-9 on the Gladly Fork permit) and one (SWIM-BB-8) or possibly two (SWIM-3) surface water monitoring sites (Tr. 69-70, 121-22, 125, 130-32, 138-39, 142-44, 147-48, 367, 1054, 1190-93, 1579, 1612; Skyline Ex. 20, Vol. III (Mining Operations Plan Map (4)); Skyline Ex. 24; OSM Ex. 6).

30 U.S.C. § 1260(b) and 30 C.F.R. § 773.15(c)(1) provide that no permit application shall be approved unless the application affirmatively demonstrates and OSM finds that it is accurate and complete and that all the requirements of SMCRA and the regulatory program have been complied with. In light of the omissions of monitoring sites, SOCM convincingly argues that the permit application was, and is, not accurate or complete and that OSM violated 30 C.F.R. § 773.15(c)(1) by approving an inaccurate and incomplete application.

The responsive arguments of Skyline and OSM are unavailing. They argue that compliance with the law is achieved by listing only those monitoring sites located within the BB2 permit area or those to be created pursuant to the specific permit for BB2. They point to the fact that OSM regularly relies upon data from monitoring sites of other permits as a useful or helpful tool (Tr. 107), implying that the off-permit monitoring sites are not necessary components of the BB2 monitoring plans. Neither the law nor the facts support these arguments.

The sites to be monitored for purposes of determining the impacts of the BB2 mining operation on the hydrologic balance and assessing whether the objectives for protection of the hydrologic balance are being met were repeatedly identified as including the aforementioned off-permit sites. Among these off-permit sites is the expected discharge point of the groundwater after exiting the backfilled areas of the BB2 mine. Mr. Liddle testified that if the BB1 mine were shutdown, the responsibility for monitoring the BB1 sites used to monitor the BB2 operations would be transferred to the BB2 permit (Tr. 165). Clearly, the unidentified off-permit sites are necessary.

Such sites must be identified in the BB2 permit application under the plain regulatory language requiring identification of the site locations. There is no qualifying terminology limiting identification to those sites “within the permit area” or “to be created under the permit.”

Contrary to OSM’s arguments, the failure to identify all monitoring sites is not cured or rendered legal by the fact that Mr. Liddle or other OSM personnel may be willing to assist inquiring members of the public in understanding the permit application (Tr. 146, 187-88, 190-91, 408-09). The plain regulatory and statutory mandate is to identify the sites in the permit application.

While the legislative and regulatory histories do not make clear the reason(s) for this mandate, it certainly facilitates the statutory purpose to encourage informed public participation. At a minimum, the application’s failure to identify all the sources of monitoring data for the mine impaired the public’s ability to reasonably evaluate and criticize the monitoring plans and diminishes the public’s capacity to monitor for, define, and report violations and insure compliance with SMCRA by appropriate legal action under 30 U.S.C. §§ 1267(h) or 1270.

## **B.**

### **Each of the Monitoring Plans Does Not Comply with the Requirement To Describe How the Monitoring Data Will Be Used**

Both the groundwater monitoring plan and the surface water monitoring plan must “describe how the [monitoring] data may be used to determine the impacts of the operation upon the hydrologic balance.” 30 C.F.R. §§ 780.21(i)(1) and (j)(2). SOCM argues that a description can satisfy this requirement only if it (1) identifies the parameters that the operator and OSM intend to use to determine the success or failure of the HRP with respect to each PHC and each HRP objective, and (2) outlines the mechanisms by which such determinations will be made, such as the

specific data trends, parameter levels, or statistical analyses that will indicate the potential failure of the HRP and trigger action on the part of the mining company and OSM. SOCM contends that Skyline's data use descriptions do not do so and therefore fail to satisfy the regulatory requirement. If this regulatory requirement is not satisfied, then OSM violated 30 C.F.R. § 773.15(c)(1) by approving the application.

The required description of data usage should satisfy a requirement similar to SOCM's requirement (1) because the regulations contemplate monitoring based upon the PHC determination so as to meet the HRP's objectives for protection of the hydrologic balance. The HRP must specify measures to meet various objectives for protection of the hydrologic balance and address potential adverse hydrologic consequences identified in the PHC determination.

30 C.F.R. § 780.21(h). The monitoring plans also must be based upon the PHC determination and must monitor parameters that relate to the same objectives for protection of the hydrologic balance. 30 C.F.R. §§ 780.21(i)(1) and (j)(1).

For the groundwater monitoring plan, the permit application provides the following vague description of how the data will be used:

The primary location of during mining and reclamation monitoring points will be **OW-1 & OW-4**. These are the same collection points used for background data collection and will allow for comparison of monitoring data to pre-mining data to determine if any potential impacts have occurred due to the mining operation.

The ground-water monitoring plan will also include **GWM-12, GWM-13, GWM-14 and GWM-15**. These wells are proposed wells and will be utilized for verification of the acid/toxic materials plan.

(SOCM Ex. 3). In a similarly vague manner, the surface water monitoring plan provides:

THE PRIMARY LOCATIONS OF THE DURING AND AFTER MINING MONITORING POINTS WILL BE SWIM-1 AND SWIM-5. THESE POINTS WILL BE IN THE SAME VICINITY OF BASELINE DATA COLLECTION POINTS CONDUCTED BY THE APPLICANT AND WILL ALLOW FOR COMPARISON OF MONITORING DATA TO PRE-MINING DATA TO ASSIST IN THE DETERMINATION IF ANY POTENTIAL IMPACTS HAVE OCCURRED DUE TO THE MINING OPERATION.

(SOCM Ex. 4).

These descriptions are so vague and general that they cannot form the basis for reasonable evaluation and criticism of the monitoring plans. They are therefore inadequate.

At a minimum, the descriptions should explain, as witnesses did at the hearing, what each monitoring site is designed to monitor either by itself or by comparison to or in conjunction with

other monitoring sites. On pages 9 through 13 of Skyline's posthearing brief, it summarizes the testimony as to the "logic" of the hydrologic monitoring plans to show that they provide for adequate monitoring of the PHC's of the BB2 operation so as to meet the objectives for protection of the hydrologic balance. That logic is the type of explanation that should be set forth in the permit application to allow for reasonable evaluation and criticism of the monitoring plans, including how they will use the data to determine the impacts of the operation on the hydrologic balance.

That logic explains, among other things, that the groundwater monitoring wells within the backfill spoil were concentrated in the southeastern portion of the mine because that area will be the first area to be mined and reclaimed, is in the path of the groundwater flow, is where the groundwater will first pool, is within or immediately down gradient from the areas where the worst potentially acid- or toxic-forming materials are located, and is where the groundwater will discharge into BB1. Further, that logic informs the reviewer that the southeastern concentration of wells will allow OSM to obtain "verification as early as possible to show whether the mine plan is working [and] to get a very quick handle on whether or not there may be problems by this operation." (Skyline's posthearing brief, p. 12 (quoting Tr. 127)).

Some detail should also be given as to how the chosen parameters "may" be used to determine if the mine plan is working or whether there is a potential problem. Some illumination of the mechanisms which "may" be used to make such determinations is also warranted, such as indicating whether statistical analysis, trend analysis, or certain parameter levels will be used. This might involve description of a range of trend variations or trend interpretation guidelines for determining if a potential problem exists (see Tr. 1609-10 (example of description of such mechanisms for the BB1 mine)). Without such information, the public or OSM personnel unfamiliar with the mining operation would find it difficult to determine if the monitoring plan is adequate or if a potential problem or violation exists or to offer constructive information or suggestions for improvement of the plan.

Contrary to the contentions of Skyline and OSM, providing such detail will not unduly restrict OSM's discretion or flexibility in analyzing monitoring data and acting upon its analyses. The regulations require a description of how the data "may" be used. 30 C.F.R. §§ 780.21(i)(1) and (j)(2). It does not require OSM to commit irrevocably to how the data "shall" or "will" be used.

Skyline and OSM are correct that the monitoring plans generally need not include trigger points which require specific action to be taken or contingency plans in the event of detection of potential problems. Mr. Liddle credibly testified that contingency plans are only necessary "if the risk is great and the probability is great of an impact. \* \* \* But it's not possible or even necessary to try to develop contingency plan for every conceivable thing that may go wrong at the mine site, because generally you don't know what to do until it actually happens and you investigate the problem." (Tr. 1600-01; see also Tr. 1078-80, 1220, 1250, 1343, 1388-90, 1506-07, 1548-50, 1600).

### C.

## **The Frequency of Monitoring**

### **1.**

#### **Each of the Monitoring Plans Is Inadequate Because It Fails To Require Monitoring Every Three Months**

Under 30 C.F.R. § 780.21(i)(1), the various parameters for groundwater “shall be monitored and data submitted to [OSM] at least every 3 months for each monitoring location [and OSM] may require additional monitoring.” Similarly, “[t]he monitoring reports [for surface water] shall be submitted to [OSM] every 3 months [and OSM] may require additional monitoring.” 30 C.F.R. § 780.21(j)(3).

SOCM argues that Skyline’s monitoring plans do not require the collection and submission of monitoring data at least every 3 months and therefore violate these regulatory mandates. If the application fails to comply with these mandates, then approval of the application violated 30 C.F.R. § 773.15(c)(1).

The approved monitoring plans require Skyline to collect monitoring data 4 times per year, but they allow Skyline the flexibility to go as long as 6 months without doing so (SOCM Exs. 3, 4; Tr. 680, 1099-1100, 1588). More specifically, the plans call for quarterly monitoring, preferably in March, July, September, and November to correspond with seasonal variations in water flow (Tr. 1098-1100); but they allow Skyline to vary from the preferred months by one-half month in either direction (SOCM Exs. 3, 4; Tr. 680, 1099-1100, 1588). Allowing Skyline the flexibility to go as long as 6 months between data collections does not comply with the plain regulatory language requiring monitoring every 3 months.

OSM and Skyline characterize the “every 3 months” requirement as a “quarterly” requirement that OSM has reasonably interpreted to allow for the collection of data at the most meaningful times according to seasonal variations, thus maximizing the effectiveness of the monitoring. Certainly, OSM and Skyline may pursue the objective of maximizing monitoring effectiveness, but they may not do so in violation of a clear regulatory mandate.

The selection of the minimum monitoring frequency requirement of every 3 months was made after consideration of numerous comments in favor of a more flexible requirement, including one based upon seasonal variations in conditions. 48 Fed. Reg. 43975 (Sept. 26, 1983). If local hydrologic conditions make additional monitoring necessary or advisable in order to obtain data at low flow and high flow periods, OSM is still obligated to establish a monitoring schedule that requires monitoring at least every 3 months, but it may also exercise its discretion to mandate additional monitoring at critical times. In light of the failure to comply with the regulatory requirements to establish monitoring plans that mandate monitoring “every 3 months”, OSM’s approval of the permit application violated 30 C.F.R. § 773.15(c)(1).

### **2.**

### **SOCM Failed To Show That OSM Erred By Not Requiring Monthly Monitoring**

SOCM further argues that OSM abused its discretion by not ordering more frequent monitoring on a monthly basis. The exercise of OSM's discretion to determine whether additional (more frequent) monitoring than "every 3 months" was necessary involves substantial technical analysis. Therefore, its determination will not be disturbed in the absence of a showing of error by a preponderance of the evidence. American Gilsonite Co., 111 IBLA at 33.

Mr. Liddle explained that quarterly monitoring was sufficient to identify any trends because the groundwater moves very slowly, as determined through OSM's vast experience regulating mines in the Sewanee coal seam over the last 20 years, including the adjacent mine sites (Tr. 58, 90-92, 1601). Mr. Rosso concurred (Tr. 1349, 1385-86). The sufficiency of quarterly monitoring was also justified by Mr. Liddle and other witnesses based upon the fact that monthly monitoring at the adjacent mine sites showed little change in the chemistry of the water from month to month (Tr. 92, 360-61 (Mr. Liddle), 1101-02 (Mr. Slone), 1385-86 (Mr. Rosso). As a result, the monitoring schedules at those mines were changed from monthly to quarterly (Tr. 92-93, 1101-02).

Based upon 6 months of data for acidity and alkalinity from one well at Gladly Fork (OW-10), one spike in sulfate levels at another Gladly Fork well (OW-8), and a vague reference to additional data, Richard Dipretoro, an expert witness for SOCM, challenged the premise that the chemistry of the water at the adjacent mine sites has not varied much (Tr. 682-83, 732-37, 1624-25). He concluded that the limited amount of data from the one well and "significant amounts" of other data showed rapid changes in the chemistry of the water (Tr. 1624-25). In so concluding, he did concede that some of the data does not show rapid changes (Tr. 1625).

His opinion, based upon such a limited amount of data from a single well, one spike in another well, and other unidentified data, does not show error in the contrary conclusion reached by Messrs. Liddle, Slone, and Rosso based upon their own reviews of the data from all of the adjacent mine sites. Such a mere difference of opinion will not suffice to reverse the reasoned opinion of a member of the Secretary's technical staff, Mr. Liddle. American Gilsonite Co., 111 IBLA at 33.

Mr. Dipretoro noted that quarterly, as opposed to monthly, monitoring would delay the accumulation of a statistically significant sample of monitoring data and opined that this delay will unreasonably increase the lead time before problems can be identified and actions taken to protect the environment (Tr. 684, 1623-24, 1648-49). If quarterly monitoring generally suffers from such a defect, then presumably the Secretary would not have promulgated the regulations (30 C.F.R. §§ 780.21(i)(1) and (j)(3)) establishing quarterly monitoring as the appropriate minimum frequency.

Mr. Dipretoro failed to adequately explain why the BB2 site is so distinctive as to require a more rapid accumulation of data than that implicitly and generally regarded as sufficient by regulation. He merely alluded to the largeness, uniqueness, and acid-producing potential of BB2 (Tr. 1648). He did not identify BB2's unique characteristics, unless he intended to do so by his

general references to its large size and acid-producing potential. He did not explain why largeness or acid-producing potential should bear upon the monitoring frequency. Further, the evidence does not show that the size of BB2 is large in comparison to the average size of a surface coal mine, but it does show that the acid-producing potential of BB2 is not extraordinary. In fact, it has less acid-producing potential than the adjacent mine sites (see e.g. Tr. 283) and the years of data from those similarly mined sites with more problematic overburden inspires confidence in the efficacy of quarterly monitoring (see, e.g. Tr. 1404).

SOCM makes much of the fact that Skyline and OSM have referenced OSM's authority and intent to make necessary changes in the TMHP and the HRP in response to any indication that the current formulation is not working. SOCM argues that "[f]ailure to require monthly monitoring is inconsistent with [this expression of authority and intent,] upon which OSM's approval of the entire permit depends, because failure to monitor monthly will almost certainly preclude the detection and remediation of any failure before mining is complete and changes are therefore impossible to make."

This argument cannot be sustained. The evidence does not show that monthly monitoring is needed to detect and remediate any problems before mining is complete. SOCM's own expert, Mr. Dipretoro, testified that the success of the TMHP could be determined under the monitoring plans long before mining even reaches the northern portion of the mine (Tr. 1740).

Furthermore, OSM and Skyline will have the benefit of weekly or biweekly monitoring of many surface water sites, as required through the NPDES permit (Tr. 109-10, 1055, 1058, 1421-22; Skyline Ex. 22), which is incorporated by reference into the permit application. They will also gain useful knowledge from monitoring in the northern half of BB1, which Mr. Dipretoro characterized as the best information on the future performance of BB2 (Tr. 1631; see also Tr. 1404).

In sum, SOCM has not shown that OSM erred by not ordering monitoring on a monthly basis. At best, SOCM has shown a difference of opinions among experts which does not justify disturbing OSM's determination.

#### **D.**

#### **OSM Did Not Err in Approving the Selection of Monitoring Wells**

SOCM's final challenge to the adequacy of the monitoring plans is a claim that the location and number of groundwater monitoring wells are insufficient to enable Skyline, OSM, and the public to determine (1) the suitability of groundwater and surface water for current and approved post-mining land uses, (2) the success or failure of the HRP for the mine, and (3) the impacts of the operation on the hydrologic balance. OSM's determination of the location and number of monitoring wells involves substantial technical analysis which will not be disturbed in the absence of a showing that the decision was in error, i.e., that it is contrary to the evidence or is otherwise arbitrary or capricious. See National Organization for River Sports, 138 IBLA at 363; Woods

Petroleum Co., 86 IBLA at 52; United States Fish and Wildlife Service, 72 IBLA at 221. American Gilsonite Co., 111 IBLA at 33; Benson-Montin-Greer Drilling Corp., 118 IBLA at 12.

SOCM has the burden of proof to show that OSM acted arbitrarily or capriciously. It may do so by showing that OSM failed to examine the relevant data and articulate a satisfactory explanation for its action, including a rational connection between the facts found and the choice made. See Motor Vehicle Manufacturers Assn., 463 U.S. at 43. Additionally, OSM's decision may be found arbitrary and capricious if it is shown that it (1) relied on factors which an applicable regulation did not permit it to consider, (2) entirely failed to consider an important aspect of the problem, (3) offered an explanation for its decision that runs counter to the evidence, or (4) is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. Id. Even where OSM's factual findings are supported by substantial evidence, its decision must be set aside if SOCM can show that it was based on an error of law. Wassenburg v. United States R.R. Retirement Bd., 75 F.3d 294, 296 (7<sup>th</sup> Cir. 1996).

At pages 36 and 37 of its opening posthearing brief, SOCM alleges:

OSM breached these standards and violated the governing regulations in approving monitoring plans for the Big Brush No. 2 mine that do not include (1) monitoring wells capable of detecting the impact of the Big Brush No. 2 mine on areas west and north of the permit boundary, (2) monitoring wells capable of detecting the movement of spoil water through the northern portion of the unmined boundary formation west of Big Brush Creek, and (3) monitoring wells capable of detecting the formation and movement of toxic water in areas of the backfill outside the southeastern quadrant of the mine. In approving the current number of site locations for monitoring, OSM failed to implement a mandatory requirement of the applicable regulation, relied on factors which the regulation does not permit it to consider, entirely failed to consider important aspects of the problem, and offered an explanation for its decision that runs counter to the evidence.

Before addressing SOCM's allegations, some general comments are warranted. SOCM and its experts have raised numerous criticisms or observations regarding the monitoring plans and the analytical process by which the content of the monitoring plans was determined. Despite SOCM's assurances that it is not challenging the validity of the CHIA or PHC determination (see, e.g., Tr. 23), many of these criticisms or observations arguably relate to the validity of the PHC determination and CHIA.

The indirect challenges to their validity relate to the recurring issue of what level of risk of adverse impacts to the hydrologic balance implicates the need for monitoring. The nature and extent of necessary monitoring obviously depends upon the level of risk (degree of likelihood and significance) of adverse impacts. Particularly through its experts' testimony as opposed to posthearing argument, SOCM has attempted to discredit the analyses upon which OSM relied in order to show that the level of risk, and hence the need for monitoring, is greater.

In general, the criticisms or observations amount to mere differences of opinion with OSM

and Skyline experts. “Because SOCM agrees that the issue is whether OSM acted arbitrarily or capriciously, the appropriate focus is not on the competing technical views that OSM, Skyline, and SOCM offer. The critical question is whether OSM considered all of the relevant factors, avoided consideration of any irrelevant factor, based its decision on credible evidence in the record, and satisfactorily articulated a reasonable basis for its decision.” (SOCM’s posthearing reply brief, p. 27).

One example of the many differences of opinion involves the statements of Mr. Dipretoro and Mr. Norris that the hydrologic modeling of Skyline and OSM cannot be accurate or realistic because the input data was not consistent for all the models (Tr. 1636-37; SOCM Ex. 12, p. 3). Mr. Nicholas and Mr. Liddle countered that it was appropriate to use different input values for different models in developing reasonable worse-case scenarios (Tr. 1297-98, 1536-38).

Another example is the dispute over whether the TMHP is proven or experimental in nature. Mr. Dipretoro opined that it was experimental because he viewed the data from Gladly Fork as showing mixed results and the data from BB1 as insufficient in quantity to reach any conclusions (Tr. 710, 1628-30, 1635-36). Mssrs. Liddle, Slone, Nicholas, and Mottet disagreed, noting that the TMHP has been used at the adjacent mine sites for 5 or 6 years without any acid mine drainage and that the data trends are positive (Skyline Ex. 20, Vol. II, Item 44A, pp. 68-70, Item 44B, pp. 6 (limeamend/02-21-97), Appendix 44B-A, pp. 44B-A-10, 44B-A-11; Tr. 89, 116, 1024-25, 1213, 1518, 1528-29, 1746-48).

Mr. Dipretoro was concerned that no marked change in water quality occurred after implementation of the TMHP at the adjacent mine sites, but Mr. Mottet explained that the absence of substantial change is not surprising in light of the slow movement of the groundwater (Tr. 1746-48). Further, Mr. Dipretoro’s opinion was based upon less data, as he reviewed data only through October of 1996, whereas Mr. Mottet had reviewed six more months of data (see, e.g., Tr. 1628-29, 1746-48).

In general, the opinions of SOCM’s experts, as compared to those of OSM’s experts, were grounded in more detailed and comprehensive familiarity and understanding of the site conditions, monitoring, operations, and permit contents for BB2 and the adjacent mine sites.<sup>12</sup> Both individually and collectively, the opinions of SOCM’s experts are insufficient to meet SOCM’s burden to show that OSM’s approval of the number and placement of the monitoring wells was arbitrary or capricious under the standards described above.

## **1.**

### **Monitoring to the West and North**

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<sup>12</sup> SOCM’s experts were disadvantageded, in part, because the BB2 permit application does not adequately identify the monitoring sites or how the data will be used.

30 U.S.C. § 1267(b)(2) “describes the characteristics of ground-water resources that must be monitored. They are all strata ‘that serve as aquifers which significantly insure the hydrologic balance \* \* \*.’” 48 Fed. Reg. at 43974 (quoting section 1267(b)(2)).

If an applicant can demonstrate by the use of the PHC determination and other available information that a particular water-bearing stratum in the proposed permit and adjacent areas is not one which serves as an aquifer which significantly ensures the hydrologic balance within the cumulative impact area, then monitoring of that stratum may be waived by the regulatory authority.

30 C.F.R. § 780.21(i)(2).

This exception to the general rule requiring monitoring of groundwater resources “has been narrowly drawn and requires the operator seeking the exemption to demonstrate to the regulatory authority that a particular resource has a limited effect, if any, on the hydrologic balance.” 48 Fed. Reg. at 43975. “No lowering of environmental protection or loss of resources which will be useful in the future is expected.” *Id.* Environmental protection includes “minimiz[ing] disturbances and adverse impacts of the operation on fish, wildlife, and related environmental values \* \* \*.” 30 U.S.C. § 1266(b)(11). Thus, “[i]ssues of \* \* \* use by wildlife have to be resolved to the satisfaction of the regulatory authority.” 48 Fed. Reg. at 43975.

The premises for SOCM’s argument that OSM erred in deciding not to require monitoring of the potential impacts of the mining operation to the west and north of the permit area are several: (1) that OSM relied upon the unsubstantiated assumption that streams to the west are not perennial and do not support aquatic life, (2) that OSM’s decision is inconsistent with prior findings of OSM that undesirable effects of mining on the streams similar to the streams to the west of the permit constituted material damage to the hydrologic balance, and (3) that the decision is inconsistent with OSM’s determination to require monitoring of the Newton Sandstone aquifer to the east of the permit in consideration of the human water users in the Hitchcox Cemetery community. SOCM concludes that the waiver of monitoring to the west was based solely upon the absence of identified human water users of the streams to the west and that OSM arbitrarily gave short shrift to the water needs of aquatic and other wildlife west of the permit area.<sup>13</sup>

SOCM’s conclusion is at odds with the evidence showing that OSM considered the water needs of aquatic and other wildlife west of the permit area and that the decision not to monitor was not based solely upon the absence of identified human water users to the west. The following

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<sup>13</sup> SOCM focuses primarily on the alleged deficiency of failing to monitor for impacts to the west as opposed to the north. This focus is undoubtedly related to the fact that the risk of significant adverse impacts to the north is less and, hence, the alleged need for monitoring is not as great. Consequently, the focus of this decision is likewise on the OSM’s evaluation of the need for monitoring to the west. However, OSM’s evaluation of the need for monitoring to the north has also been considered and is found rational and not arbitrary or capricious.

comments and findings of OSM in its CHIA show that the needs of wildlife and aquatic life were on its radar screen and that the Newton Sandstone was found not to be a Material Damage Protected Resource because it does not significantly insure the hydrologic balance.

During coal mining activities other natural resources and uses are temporarily adversely affected by mining such as \* \* \* wildlife habitat \* \* \*. The key is that the impacts are minimized so that the resources and their uses can be restored after mining. Hydrologic impacts are considered in this same logic. Water resources in most cases can be temporarily affected as long as they will be restored after mining and that no water users will be materially damaged in the process. Water users include \* \* \* wildlife [and] aquatic life \* \* \*. The goal is to manage the hydrologic resources by minimizing disturbance by mining. However, as with impacts to any natural resource or land use there are certain critical levels that may cause irreparable damage to either the user or the resource. In hydrology this critical level is termed “Material Damage”.

This document \* \* \* describes the water resources that are to be protected from material damage \* \* \*.

(Skyline Ex. 20, Vol. IV, CHIA, p. 4) (emphasis supplied).

The Newton Sandstone was found not to be a Material Damage Protected Resource “even though it is an aquifer \* \* \*. This is due to the fact the water bearing unit is a small portion of the hydrologic balance and the material damage criteria applies to the hydrologic balance not specific well users.” (*Id.*, p 64) OSM explained in the CHIA that

the presence of aquifers is not the best overall indicator of significant ground water resources since aquatic life uses, [threatened and endangered] species of fish and wildlife, agricultural and other non-human water uses are not considered in the aquifer definition. \* \* \* SMCRA refers to prevention of material damage to the “hydrologic balance” which includes something more than just appeasing current aquifer water users. Evaluating the significance of the ground water resource to the overall hydrologic balance is the primary directive of the regulatory agency \* \* \*; if a ground water is significant it is a material damage protected resource.

(Skyline Ex. 20, Vol. IV, CHIA, p. 11). OSM concluded that “the water budget shows [the Newton Sandstone] does not contribute significantly to the hydrologic balance; even though it is an aquifer capable of supplying water for domestic needs \* \* \*.” (*Id.*, p. 53)

As Mr. Liddle explained, OSM did not require Skyline to monitor the Newton Sandstone west or north of the permit because it was not an aquifer which significantly insures the hydrologic balance (Tr. 367-74). The absence of users of the streams to the west was one factor leading to the conclusion that the aquifer does not significantly insure the hydrologic balance and that no

monitoring was necessary to the west or north (see Tr. 367-74, 385, 1527, 1530, 1597-98).

Certainly, the absence of users of the streams to the west and north, which may receive some flow from the Newton Sandstone, is a relevant factor. In determining whether a waiver of

monitoring is warranted for a stratum, “the focus [should be] on adverse effects to the hydrologic balance rather than the significance or marginality of an individual resource. Current and potential uses of the ground-water resource would be relevant to any decision for waiver of monitoring.” 48 Fed. Reg. at 43975. If the particular resource supplies water to other water resources that are significant, whether as a supply for fish and wildlife or other uses, those other uses are relevant. See id. Likewise, the absence of such uses is relevant.

The major factors which OSM considered are appropriately related to the risk (likelihood and significance) of any adverse effects on the hydrologic balance (Tr. 100, 1524-25) so as to determine the nature and extent of monitoring necessary to protect the hydrologic balance. In addition to the absence of water users to the west and north, OSM relied upon the following factors in determining that there are no probable significant hydrologic effects to the north or west to necessitate monitoring.

First, the discharge of any significant amount of groundwater to the north or west is not probable for several reasons: (1) because the postmining watertable elevation to the north and west is predicted to be 60-80 feet below the Whitwell Shale/Newton Sandstone interface and thus the groundwater will be contained by the virtually impermeable shale, (2) because even if the water table were to rise to the level of the Newton Sandstone, it is much less permeable than the spoils, and (3) because the postmining groundwater is reasonably predicted to flow from northwest to south-southeast (Tr. 284, 367-74, 385, 1325-32, 1548; Skyline Ex. 35).

Second, the possible drawdown and dewatering effects to the north and west are insignificant because there are no water resources to the north or west which would be significantly impacted even under a worse-case scenario (Tr. 367-74, 385, 1329-32, 1526-30, 1597-98). Mr. Liddle relied upon calculations showing (1) that, at most, the BB2 mining operation would shift the groundwater divide a few thousand feet to the west, and (2) that the Newton Sandstone receives only one to three inches of the approximately 19 inches of available annual precipitation for recharge, whereas the streams receive the remaining 16 to 18 inches of recharge per year from interflow at the soil/bedrock interface, indicating that the streams receive, at best, a small portion of their flow from the Sandstone (Tr. 367-68, 1597-98; Skyline Ex. 20, Vol. IV, CHIA, pp. 31, 41, 50, 64). From these calculations, he reasonably concluded that the BB2 mining operation would result in an insignificant amount of dewatering of the area west or north of the permit (Tr. 367-68, 1329-32, 1529-30, 1597-98).

Other factors upon which Mr. Liddle relied include the limited value of placing monitoring wells in the northern spoils because they would not provide data until after mining is completed (Tr. 126-27). OSM preferred to rely upon wells that would provide early indications of the impacts and effectiveness of the mining and reclamation plans, such as Wells OW-1 and OW-4 on the eastern edge of the permit, which will be monitored to determine, among other things, the extent of the drawdown of groundwater within the Newton Sandstone (Tr. 1529-30).

There was some dispute over the extent of the drawdown and its effects, but it amounted to a mere difference of opinion. Mr. Dipretoro speculated as to potential effects on the western streams

and even less likely effects to the north under what amounted to a worse-case scenario which is similar to that employed by Mr. Liddle and which is based upon a drawdown effect of 4,000 feet discussed in the CHIA (Tr. 701-03, 748-752, 824-25).

However, Mr. Dipretoro did not review those portions of the permit detailing the interchange between OSM and Skyline regarding the likely extent of the drawdown and the suspect assumptions of the worse-case scenario nor did he study Skyline's reasonable calculations that the drawdown was more likely to range from 500 to 1,500 feet (Tr. 824-25, 830-31). Skyline relied, in part, upon the fact that well OW-1 showed no drawdown effect when mining operations on BB1 came within 2,000 feet thereof (Tr. 1322-24). Mr. Dipretoro countered that drawdown effects were evidenced by a 5-foot drop in the water level in OW-1 and a 13-foot drop in the water level of well OW-9, which is farther away from the BB1 mining (Tr. 1620-21). He later acknowledged, however, that those drops could be explained by seasonal variations and the proximity of OW-9 to a creek (Tr. 1699-1700).

While Charles Norris, one of SOCM's experts witnesses, testified that the shift in the groundwater divide may be greater than predicted because OSM and Skyline did not account for the fact that the recharge of the Newton Sandstone may be greater after dewatering, and while he offered other criticisms of Skyline and OSM modeling (Tr. 547-55, 558-59), neither he nor the other SOCM experts made their own calculations of the potential extent of the shift in the groundwater divide (see, e.g., Tr. 751). Further, Mr. Dipretoro did not know if the suspect worse-case scenario would result in a significant amount of dewatering, and he ultimately concluded that there was not enough data to make a determination as to whether the effect on the western streams would be insignificant (Tr. 751-52, 840).

These opinions do not show error or arbitrariness in Mr. Liddle's analysis. They are simply differences of opinion regarding the necessity of additional data and the interpretation of the available data.

Turning to the three premises of SOCM's argument, premise (1) is not correct. Mr. Liddle's assumption that the western streams are not perennial and do not support aquatic life (Tr. 331-35) was reasonably based upon facts known at the time of permit approval and was substantiated at the hearing.

In determining whether monitoring sites should be located to monitor possible impacts to the west, Mr. Liddle evaluated whether there were any water users, including aquatic life, of the potentially affected water resources to the west (Tr. 331-32). Those resources are the unnamed first order tributaries of Green Sea Branch and Rocky River (Tr. 1048, 1093-94, 1314). He concluded that there were no users (Tr. 331-35). The information upon which he relied included a Skyline inventory of all water users, except aquatic life (Tr. 331-33). That inventory found no users (Tr. 332). He also relied upon the fact that the western streams were similar in size and elevation to the first order streams (Big Brush Creek and its tributaries) to the northeast above the Big Brush Creek/Glady Fork Creek confluence (Tr. 333-35, 1593-95, 1597; Skyline Ex. 20, Vol. II, Appendix 40-A, p. 40-A-10). Because the northeastern streams dry up during the summer

and do not continuously support aquatic life, as determined by a biological survey, and because of their similarity to the western streams, Mr. Liddle reasonably concluded that the western streams also dry up and do not continuously support aquatic life (Tr. 333-35, 1593-95, 1597).<sup>14</sup>

At the hearing, several witnesses, including Mr. Dipretoro, confirmed that the western streams dry up during the summer (Tr. 702, 1048, 1093-94, 1314, 1511-12). In fact, the permit application points out, based upon substantial data, that most first and second order streams throughout the Cumberland Plateau dry up during the summer and that some first order streams in the cumulative impact area dry up and do not sustain aquatic life (Skyline Ex. 20, Vol. II, pp. 44-A-7, 44-A-8, Vol. IV, CHIA, p. 7, 10, 30). Based upon the evidence available at the time of permit approval and, as confirmed at the hearing, Mr. Liddle's conclusions regarding the western streams were supported by competent evidence, did not run counter to the evidence, and were not otherwise arbitrary or capricious.

SOCM's argument that OSM should have required Skyline to gather and submit data on the actual extent of aquatic life in the western streams cannot be sustained. 30 C.F.R. § 780.16(a) provides that the scope and level of detail for fish and wildlife information "shall be determined by the regulatory authority in consultation with State and Federal agencies with responsibilities for fish and wildlife and shall be sufficient to design the protection and enhancement plan required under paragraph (b) of this section." The relevant portion of paragraph (b) states that the protection and enhancement plan shall apply, "at a minimum, to species and habitats identified under paragraph (a) of this section." Those identified are listed or proposed threatened or endangered species or their critical habitats, habitats of unusually high value for fish and wildlife, and other species or habitats identified through agency consultation as requiring special protection. 30 C.F.R. § 780.16(a)(2). Such State and Federal agencies were consulted and OSM concluded "that the operation, as proposed, should have no effect on any threatened or endangered species, or result in destruction or adverse modification of critical habitats." (Skyline Ex. 20, Vol. I, Item 34, Vol. IV, p. II-4)

The implication of Mr. Liddle's testimony is that a full inventory of the western streams' aquatic life was deemed unnecessary. SOCM never explored through cross-examination of Mr. Liddle or otherwise OSM's decisionmaking process regarding the scope and level of detail of fish and wildlife information that was required. There is no basis for concluding that OSM acted arbitrarily in exercising its discretion to determine what information was required.

Moreover, even assuming, arguendo, that the western streams in the cumulative impact area support aquatic life, the evidence shows that the likelihood of any adverse impact to the western streams is minimal. This low probability was an important factor in OSM's decision not to monitor to the west and is ample justification for concluding that monitoring was not necessary to protect the hydrologic balance, including any aquatic life in the western streams.

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<sup>14</sup> Mr. Dipretoro likewise did not doubt the intermittent nature of streams with flows unknown to him based upon their similarity to streams which he knew to be intermittent (Tr. 840).

Contrary to SOCM's premise (2), OSM's decision not to requiring monitoring to the west is not rendered arbitrary by the prior findings of OSM that the undesirable effects of mining on streams similar to the streams to the west of the permit constituted material damage to the hydrologic balance. The fact that the prior findings may be inconsistent with OSM's decision does not render it arbitrary. It may be that the prior findings were arbitrary or that they were based upon different facts or considerations. Manifestly, the prior findings pertained to different permit areas and were based, in part, upon the significance of actual effects to the hydrological balance, whereas OSM's present decision is based upon both the significance and likelihood of potential effects. The prior findings do not show that OSM failed to consider all relevant factors, considered irrelevant factors, failed to base its current decision upon credible evidence in the record, failed to articulate a rational basis for its decision, or otherwise show that it is arbitrary.

SOCM's third and final premise for the arbitrariness of OSM's determination not to monitor to the west is its alleged inconsistency with OSM's determination to require monitoring of the Newton Sandstone aquifer to the east of the permit. In a vacuum, one might just as easily argue that the disparate treatment shows that the determination to require monitoring to the east was arbitrary or unnecessary. Indeed, the actual facts show that monitoring to the east was probably unnecessary because the drawdown was not likely to extend that far, but that it was required out of an abundance of caution related to the "high profile" nature of the permit and the relevant distinction that there is an identified water user to the east, the Hitchcox Cemetery community, and no users to the west (Tr. 72-73, 1320-25, 1527-29, 1532-33, 1560-63).

## 2.

### **Monitoring the Backfill Spoil and the Unmined Boundary**

In an effort to discredit the selection of the number and placement of backfill monitoring wells for the BB2 mine, SOCM contrasted their relatively small number and their concentrated placement with the larger number of relatively more evenly spaced wells at the adjacent mine sites (see, e.g. Skyline Ex. 3, p. 8; Tr. 1228-31, 1243, 1251-53, 1614, 1688-91). However, many of the wells at Gladly Fork and Pine Ridge East were not part of the original monitoring plans but were added during mining to identify problems that developed before implementation of the TMHP's (Tr. 1228-31, 1251-53). More importantly, the comparison is simply not persuasive evidence of something amiss with the monitoring plans for BB2 or of arbitrariness in OSM's actions.

SOCM's experts repeatedly attacked the bases for concentrating the wells in the southeastern portion of BB2. As SOCM notes, its "experts have cautioned at length that water may move through the backfilled spoil at [BB2] in very different patterns than OSM and Skyline predict, and SOCM questions whether Skyline's [TMHP] has actually worked in the past as claimed or will work at [BB2]." (SOCM's posthearing opening brief, p. 41).

SOCM maintains, however, that these expert disputes over the bases for the monitoring plans need not be resolved because OSM's approval of the number and placement of spoil and boundary wells is arbitrary for two reasons. First, the approval was allegedly based on a clearly erroneous

assessment of the distribution of acid- and toxic-forming materials in the overburden of the BB2 mine and thus runs counter to the evidence. Second, OSM allegedly failed to consider an important factor: the possibility that its predictions of ground water flow and water chemistry may prove erroneous or, as otherwise stated, the capability of the monitoring plan to detect the failure as well as the success of Skyline's HRP.

SOCM contends that Mr. Liddle erroneously concluded that the acid- and toxic-forming materials were concentrated in the southern third of BB2 based upon OSM Ex. 5, a map which Mr. Liddle prepared (see Tr. 88-89, 126-27, 1557-60 (most or the worst of the problematic materials are in the southern one-half or one-third of the mine site immediately north or northwest of the monitoring wells)). Based upon the testimony of Mr. Dipretoro, SOCM correctly maintains that SOCM Ex. 28, a map prepared and included by Skyline in the permit application, more accurately depicts the distribution of problematic materials (see Tr. 1630-44, 1734-37).

According to Mr. Dipretoro, the Skyline map shows that the quality of the materials in the north is worse (Tr. 1633-35, 1735-37; SOCM Ex. 28). A fair reading of this map is that the problematic material is rather evenly distributed between north and south and that the worst material is located to the mid-east and southeast (see SOCM Ex. 28; Tr. 1737-38).

Mr. Dipretoro acknowledged that the spoil wells are located within or immediately south of the areas with the worst material and that the wells would intercept the water from these areas if the projected groundwater flow is correct (Tr. 1737-39). He also stated that the mining operation would not reach another area of problematic material farthest to the north for four or five years so that the TMHP would have been implemented over a substantial portion of the mine before that northern area would be mined (Tr. 1739-40). He therefore conceded that the proposed monitoring points, including the sites on BB1, would generate data from which determinations could be made as to the success of the TMHP long before the mining operation reached that northern area (Tr. 1631, 1643, 1740).

Thus, while Mr. Liddle may have mischaracterized the distribution of problematic materials to some extent, he was correct that the worst of the materials is located in the southeast (with some in the mid-east as well) and that the projected groundwater flow from the problematic areas should be intercepted by the groundwater wells. His complete analysis and approval of the groundwater monitoring plan was confirmed by Mr. Dipretoro to a large extent. It simply does not run contrary to the evidence but is amply supported thereby.

His complete analysis and approval was based upon the several factors - not just the distribution of acid- and toxic-forming materials. Those factors lead to the conclusion that the plan would allow Skyline and OSM to determine the impacts of mining and the success of the TMHP as soon as possible to insure protection of the hydrologic balance and the suitability of the groundwater for current and approved postmining land uses. Those factors include selecting locations to the east and south to intercept the groundwater from where it is likely to pool first so as to obtain monitoring data as soon as possible.

The placement of wells farther north was considered but rejected for numerous reasons in addition to the location of most or the worst of the problematic materials (Tr. 126-27, 317, 371-74, 1066-67, 1088-89, 1092-97, 1319-20). First, all of BB2 will be mined before a northern spot could be reclaimed, a spoil well could be dug, the water table could restore there, and data could be gathered (Tr. 126-27, 1066-67, 1231-32). By that time, if the data shows a potential problem, corrective adjustments to the TMHP would be impossible because mining would already be completed (*id.*). Second, as previously discussed, there is no chance of a significant amount of groundwater escaping in the north to the west, north, or east because the projected postmining water table lies far below the Whitwell Shale/Newton Sandstone interface and the virtually impervious Whitwell Shale will contain the groundwater. Third, as already mentioned, there are no water users, other than the Hitchcox Cemetery community, nor water resources that significantly insure the hydrologic balance to the west, north, or east, which require protection. Fourth, once the water table is fully established, with all the low points filled in, nearly all the water in the north should eventually flow south through the areas in BB2 and BB1 where the monitoring wells are located (Tr. 1336). In other words, there is no likely significant harm to be monitored to the north and no significant additional benefit from placing a well there (Tr. 384-385, 1332).

In an attempt to show arbitrariness to meet the standard of review, SOCM couches its second reason for challenging the number and placement of the groundwater wells in terms of a failure to consider an alleged relevant factor: the possibility that the predictions of groundwater flow and water chemistry may prove erroneous or, as otherwise stated, the capability of the monitoring plan to detect the failure as well as the success of Skyline's HRP. This characterization of the issue begs such questions as (1) to what extent, if any, is the alleged factor relevant, (2) what should a monitoring plan be capable of detecting, and (3) is the possibility of error in predictions relevant no matter how unlikely or immaterial the adverse effects upon the hydrologic balance and the suitability of the water for the current and approved postmining land uses?

Relying primarily upon Mr. Dipretoro's opinions, SOCM argues that the monitoring plans are not capable of detecting: (1) the predicted saturation of the pit floor to a depth of 5 feet throughout the mine, (2) the predicted direction of the groundwater flows throughout the backfill, (3) the predicted location and unpredicted timing of groundwater discharge points, (4) the predicted relationship of the postmining water table to streams and buried dragline bench horizons, (5) the predicted absence of effect on the Sewanee Conglomerate aquifer, (6) the predicted benign chemistry or absence of acid mine drainage, (7) the absence of quantity and quality effects on all aquifer areas outside the permit, and (8) upgradient and background or baseline conditions (*see, e.g.*, Tr. 24-26; Skyline Ex. 3, p. 7). In Mr. Dipretoro's opinion, "the monitoring program has to be based on prudent assumptions that the predictions may not be correct." (Tr. 1537-38)

Taking Mr. Dipretoro's position to its logical extreme, the predictions, *i.e.*, the determination of the PHCs, are worthless and there is no limitation upon or basis for determining the extent and nature of necessary monitoring. There must be some limitations upon and bases for monitoring and, by law, those are derived from the PHC determination and the analysis of all baseline hydrologic, geologic, and other information in the permit application. *See, e.g.*, 30 C.F.R. §§ 780.21(i)(1) and (j)(1).

The preamble to the rule promulgating the monitoring plan requirements states, “Monitoring is to be based on the PHC determination and must be sufficient to measure the suitability of the \* \* \* water for current and approved postmining land uses [and] to meet the objectives for protecting the hydrologic balance as set forth in the [HRP] \* \* \*. Monitoring for these objectives should result in the data necessary to indicate any unforeseen changes.” 48 Fed. Reg. at 43976. “The ongoing monitoring will provide the regulatory authority with operational data so that adjustments to the [HRP] or other permit conditions may occur.” Id. at 43965.

The PHC determination necessarily involves an analysis of the risks (the likelihood and the significance or materiality) of potential adverse impacts in order to meet the objectives for protecting the hydrologic balance and insuring the suitability of the groundwater and surface water for the current and approved postmining land uses. Skyline and OSM correctly tailored the monitoring program to that risk analysis and those objectives (see, e.g., Tr. 100, 114-17, 291, 325, 327, 410, 1102-04, 1312, 1315, 1334, 1350-52, 1524-29).

In so doing, OSM clearly considered the possibility that the analysis of the risk (the predictions) may prove incorrect (see, e.g., Skyline Ex. 20, Vol. II, Appendix 44B-A, pp. 44B-A-10, 44B-A-11). Monitoring is required at OW-1 and OW-4 on the eastern border despite the fact that no significant groundwater movement is expected to the east and that the adjacent stream system was found not to be a material damage protected resource (see, e.g., Tr. 378-79, 1090). Monitoring near the Hitchcox Cemetery community was also required despite serious doubts as to its necessity. In choosing not to locate monitoring wells elsewhere to the north, east, or west, the likelihood that a significant amount of groundwater might discharge to the north, east, or west (i.e., that the predictions might be incorrect) was considered but found insignificant, especially as there were no significant water resources or users (other than the Hitchcox Cemetery community) in those directions and there was a TMHP that was likely to succeed.

The entire monitoring plan selection process involved consideration of the likelihood and significance of potential future events and their impacts, including potential events and impacts that were ultimately found (predicted) to be unlikely and/or insignificant. The degree, if any, to which those potential events and impacts should be monitored must depend upon the degree of risk of adverse impacts to the hydrologic balance and the suitability of the water for the current and approved postmining land uses.

The main thrust of SOCM’s evidence and the unspoken premise of many of its experts’ opinions is that OSM and Skyline have miscalculated the likelihood and significance (i.e., the risk) of potential adverse impacts of the BB2 operations and/or that OSM and Skyline have established a threshold level of risk for which monitoring is required that is too high. At most, the evidence shows a difference of opinion regarding the risks; it does not show that OSM failed to consider relevant factors, that its rationale for approval of the monitoring plans runs counter to or is not supported by competent evidence, or that it otherwise acted arbitrarily.

Mr. Dipretoro opined that a network of piezometers or other monitoring sites were needed to make the monitoring plans adequate. His opinion was supported by SOCM’s other experts, Mr.

Norris and Ellen Smith. They based their opinions upon numerous contentions which, in general, were effectively rebutted in the expert witness report of Mr. Nicholas, which is amply supported by the record as a whole. To reiterate, SOCM's challenges, at best, amount to differences of opinion that do not show that OSM acted arbitrarily.

First, Mr. Dipretoro opined that the southeastern spoil wells will not detect the groundwater table level to the north and therefore that installation of a grid of piezometers is necessary to effectively monitor whether saturation of the pit floor takes place north of the southeastern monitoring wells (Tr. 952-53; Skyline Ex. 3, p. 9). It is anticipated in the HRP that the basal 5 feet of the pit floor will be permanently inundated following mining and reclamation as a measure to prevent pyrite oxidation and subsequent acid mine drainage (Skyline Ex. 12). Mr. Dipretoro characterized this expectation as "an essential part of Skyline's plan to avoid [acid mine drainage.]" (Skyline Ex. 3, p. 9). SOCM's other expert witnesses, Mr. Norris and Ms. Smith, concurred that other monitoring points were needed because the southeastern wells will not detect the water table level farther north (Tr. 558-59, 569-72, 896, 948-49, 952-54).

Using a generally accepted engineering method for calculating water levels in an excavated area, Skyline predicted that the water levels in the north portion of the backfill would range from 1810 to 1820 feet, with the levels gradually decreasing to the south where they would range from 1750 to 1770 feet (Skyline Exs. 6 (pp. 6-7), 36 (p. 9)). Mr. Norris disputed the accuracy of the modeling, opining that the assumptions of the model - the aquifer is horizontal and a constant thickness - do not match the conditions at the mine (Tr. 566-69). He concluded that even if the conditions matched the assumptions, the modeling would not provide a reasonable scientific basis for restricting the groundwater wells to the southeastern portion of the mine (Tr. 568-69).

Mr. Nicholas disagreed, opining that the water table modeling was conducted in accordance with standard scientific practices and that the modeling is accurate within a reasonable degree of scientific certainty (Tr. 1264, 1333). He also noted that both a pumping test in the reclaimed backfill of Glady Fork and monitoring results showing saturation of the pit floors at Glady Fork and BB1 supported the model's prediction of submersion of the pit floor at BB2 (Skyline Ex. 36, p. 9; Tr. 268, 293, 384, 1554-55). Mr. Liddle echoed Mr. Nicholas, stating that the modeling and the experiences at Glady Fork and BB1 showed that inundation of most of the pit floor would probably occur (Tr. 1554-55).

Further, Mr. Liddle opined that even if the pit floor was not completely inundated, the TMHP will still be effective in preventing acid mine drainage because leaving the pyritic material dry may be as good as or better than keeping it submerged in anoxic water, especially when combined with lime amendments (Tr. 1555-56). Also, the highest pit floor elevations, where inundation is least likely, are in the northwest where the overburden is generally net alkaline (Tr. 1556-58; SOCM Exs. 7, 28). Consistent with this testimony, Mr. Slone and Mr. Nicholas stated that while inundation provided some benefit, it was not essential to prevent acid mine drainage, as other components of the HRP were more important (Tr. 1150-51, 1337).

While piezometers or wells in the northern backfill would give precise measurements of the

water table, Mr. Nicholas and Mr. Liddle opined that data from the southeastern wells can be used at an early date to verify the accuracy of the water table modeling and to extrapolate the level of the water table in the north plus or minus 10 feet (Tr. 310-15, 427-28, 379-80, 1333-34, 1340). Other monitoring points, such as OW-1, will be useful in determining gradients which, in turn, can be used to determine whether the water table is above or below a certain level (Tr. 310-15). Mr. Liddle concluded that data from the spoil wells can be used to determine to a reasonable degree of scientific certainty whether the pit floor is completely saturated (Tr. 379-80).

In sum, the evidence amounts to mere differences of opinion as to the validity and accuracy of the water table prediction and as to the need for additional monitoring. SOCM has not shown that OSM acted arbitrarily.

Mr. Dipretoro and Ms. Smith believed that the piezometer network or other monitoring in all directions is needed after reclamation for two additional reasons. They opined that it will

provide data to support or refute the groundwater flow predictions and to give early warning if the hydraulic gradient appears to favor discharge at a location other than the predicted location near basin 003 (Skyline Ex. 3, pp. 9-10; Tr. 693-701, 704-05, 911). Mr. Dipretoro noted that the backfill will have a higher topographic profile than the original landscape that could cause water elevations to rise higher than expected in relation to undisturbed streams, creating gradients favoring discharge near SW-6 (just north of well OW-1) on Big Brush Creek at an elevation of 1780 feet or elsewhere (id.; Tr. 704-05; see Skyline Ex. 29). He opined that OSM and Skyline could not reliably assume that the dip of the pit floor will strictly control groundwater gradients (Skyline Ex. 3, p. 10).

Ms. Smith was also concerned that the water table might rise substantially higher, creating eastward gradients towards the creek, if the water does not drain south through the backfill as efficiently as anticipated (Tr. 893, 895, 904-05, 949-51). Both Mr. Dipretoro and Ms. Smith were particularly worried about the possibility of such gradients developing through the Newton Sandstone in the northern two-thirds of the mine (Tr. 693-94, 700-01, 879-81, 886, 891).

Mr. Norris likewise disagreed with the modeling of OSM and Skyline that predicted that the groundwater will follow the dip of the coal pit floor, because a groundwater table typically forms a subdued replica of the surface topography, with water movement from ridges to low points under streams (Tr. 537-40). He stated that the determinant of groundwater flows is hydrologic gradient not structural contours but implied that gradient may, in fact, follow such contours (Tr. 537-38). Further, even if he had confidence in the modeling of OSM and Skyline, he would still monitor to the north and west until sufficient data was gathered to show that the model was accurate (Tr. 540).

Mssrs. Slone, Nicholas, and Liddle defended the groundwater flow predictions, stating that the high permeability of the backfill dictates that topographical influences will be minimal and that the flow will follow the downdip of the pit floor to the south-southeast (Tr. 1038-42, 1044-45, 1280, 1286, 1533-35). The proven accuracy of similar groundwater flow predictions at Glady Fork and BB1 supports their position and Ms. Smith acknowledged that data from those operations is valuable (id.; Tr. 889-91).

Mr. Dipretoro disputed the alleged fact that the groundwater flow at Glady Fork was all to the south, asserting that there was some flow east into Spring Branch (a creek) (Tr. 1606-07, 1615-17, 1627, 1653-57, 1660). He relied, in part, upon Glady Fork data showing that the water table at well OW-5, which lies south of wells OW-7, OW-8, and OW-9, was 2 feet higher than the water table at those wells (Tr. 1606-07). He opined that this fact indicated that any southerly gradient does not extend past OW-5 and that a more reasonable explanation of the data was that water was flowing east into Spring Branch, given that the wells were higher in elevation than the creek (Tr. 1606-07). He also relied upon a masters thesis study made by Charles Blackburn which opined that water discharge was most likely to the east into Spring Branch based upon elevations in the water wells relative to the creek (Tr. 1607, 1728).

However, Mr. Dipretoro did not perform any studies to determine why the water table was higher at OW-5 and he acknowledged that the higher table at OW-5 may be attributable to the large amount of water being pumped into the backfill above OW-5 (Tr. 1653-54, 1749-53). Also, the fact

that Spring Branch goes dry calls into question Mr. Blackburn's thesis that there may be groundwater flows into Spring Branch (see Tr. 1653-57, 1738-32). Further, SOCM's experts' knowledge of the operations and conditions at Glady Fork and BB1 was certainly not as comprehensive as that of Mssrs. Liddle, Slone, and Nicholas (see Tr. 889, 915-924).

Mr. Nicholas effectively addressed the concerns that the pit floor downdip will not control flow and that groundwater might discharge near SW-6 at an elevation of 1780 feet or elsewhere:

First, experience at Big Brush No. 1, Glady Fork, and Pine Ridge mines shows that the dip of the coal seam does control ground water levels. Second, existing ground water levels in the Newton sandstone are already below the level of the post-mining highwall and SW-6. To discharge near SW-6, post-mining water levels would have to increase. Mining will remove the impermeable Whitwell shale, which underlies the Newton sandstone. With the removal of the Whitwell shale, the ground water table will reform on the next relatively impermeable layer, which is the pit floor. Since the pit floor is more than 30 feet lower, it is virtually certain that post-mining ground water levels will be lower than pre-mining levels. Mining impacts will lower the ground water level, not increase them, making a discharge near SW-6 unlikely.

Although ground water levels are predicted to remain considerable below the top of the highwall, monitoring stations are in place to detect impacts if groundwater did discharge as SOCM's expert claims. Four sediment ponds are located in topographic lows, which correspond to the points where ground water would first intercept the surface. Each of these points is monitored under the NPDES permit. Also, surface water monitoring station SW-5 is located downstream from these discharge points. Any discharging ground water would be detected by this monitoring network.

From the structural maps, it is clear that areas located along the northern and western perimeter of the mine of Big Brush No. 2 will not control the direction of ground water flow. Based on the detailed structural map of the pit floor, monitoring wells GWM-12, 13, 14, and 15 are located in the path of ground water flow. Although flow is not expected in this direction, Skyline's ground water monitoring plan also includes wells in the Newton sandstone aquifer located down dip from the mine site. A well is located between the mine site and Big Brush

Creek to monitor any ground water flow through the highwall. Monitoring wells are also located between the mine site and ground water users. These wells provide the information needed to verify the predicted ground water flow direction.

\* \* \* \* \*

In the figure "Estimated Post-mining Water Level Contours and Sewanee Coal Structure" in Appendix 44-C of the permit, the expected ground water discharge point is clearly shown approximately 1000 feet south of the boundary between Big Brush No. 1 and Big Brush No. 2. Sufficient structural data is available to accurately determine the ground water discharge point.

SOCM's expert also contends that a piezometer network is needed to provide data to help estimate the monitoring of the timing of the discharge. This ignores the fact that the proposed monitoring points are located in the likely ground water flow paths. The monitoring wells are located updip from the expected groundwater discharge point and will provide data that allows the timing of any discharge. Since the southeastern quadrant of the mine is closest to the predicted discharge point and this portion of the mine will be mined first, wells GWM-12, 13, 14, and 15 located in the southeastern portion of the mine will verify predictions concerning post-mining water levels, ground water flow directions, and the timing and location of the ultimate discharge points at an early stage in the mine's life. If ground water moves offsite in an unexpected direction, wells OW-1, OW-4, GWM-16, and GWM-17 will identify this fact. While these wells are adequate to identify the discharge location and timing, other wells are also available.

As noted by SOCM's expert, ground water will leave the Big Brush No. 2 mine at a structural low near SW-4 and enter the Big Brush No. 1 permit. Monitoring wells have been located to intercept ground water flowing through this structural low. In addition to the network of wells on Big Brush No. 2, well GWM-15, GWM-16, and GWM-19 on the Big Brush No. 1 monitor the timing of discharges between the southern boundary of Big Brush No. 2 and the ultimate discharge point. After passing the network of monitoring wells, ground water exiting the backfill will also flow through a sediment pond and NPDES monitoring point located on Big Brush No. 1. Finally, the impact of this discharge is monitored at SWIM-3 on Big Brush Creek.

Skyline Ex. 36, pp. 10-11 (see also Tr. 371-74, 383, 1088-91, 1166-67, 1391-20; other portions of this decision discussing the degree of likelihood and significance of flows to east, west, or north).

Both Mr. Dipretoro and Ms. Smith acknowledged that the predicted southeast groundwater flow was plausible (Tr. 848, 896-97, 1727). Mr. Dipretoro also acknowledged that if the water table elevation predictions are correct, there will be no flow to the north or west (Tr. 748). While the monitoring plans will not be able to detect groundwater flow directions in the

north or west portions of the mine (Tr. 799, 896, 948-49, 952-54, 1146), OSM reasonably concluded that there was no need for such detection, given the unlikeliness and insignificance of discharges in those areas and the early warning capabilities of the proposed monitoring sites.

A fourth reason for Mr. Dipretoro's advocacy of additional monitoring points was his concern that groundwater would emerge into the streams traversing the mine site or would rise above the projected level of the dragline bench horizon within the backfill (Skyline Ex. 3, pp. 10-11). He was concerned that the lateral drains paralleling the benches might not prevent groundwater from damming and rising to problematic levels (*id.*).

Once again, Mr. Nicholas effectively responded to Mr. Dipretoro's concerns:

SOCM's expert contends that piezometers are needed in other areas to monitor continuity of the lateral drains. He suggests that damming of the ground water would raise water levels unacceptably high. Lateral drains of the type proposed in this permit are a well proven technology, having been used for hundreds of years. The engineering literature contains the results of extensive research on rock drains and design criteria are well established. Literally thousands of drains have been installed in civil and mining engineering works in this country. Rock drains of this type have been successfully used to remove groundwater from foundations, roadways, hazardous waste sites, landslides, and hollow fills. Skyline's consultants have successfully used rock drains of this type to intercept and direct ground water flow at mine sites in Tennessee, Kentucky, and West Virginia. Based on successful application of this technology at numerous sites, installation of piezometers is not necessary to verify the continuity of the lateral drains.

As previously described, removing the Whitwell shale and increasing the hydraulic conductivity of the backfill is expected to lower water levels. In Item 44A of the permit, predicted post-mining ground water levels were compared to the elevation of reconstructed streams crossing the reclaimed mine. From reviewing stream profiles presented in Appendix 44-B of the permit application and post-mining potentiometric maps included in Appendix 44-C, the only place where the post-mining ground water table is likely [to] intercept the stream is the southeastern quadrant of the mine site. Wells GWM-12, 13, and 14 are located in the proper place to monitor this potential impact. However, if water levels did increase due to "damming" of the lateral, the result would be reflected in the water levels in the ground water monitoring network. An increase in water level would result in a change in the hydraulic gradient, an impact that would be identified through monitoring of wells GWM-12, 13, 14, and 15. In addition, a significant increase in water levels would reverse the hydraulic gradient between the spoil wells and wells GWM-16, GWM-17, and OW-1.

(Skyline Ex. 36, p. 12).

Mr. Liddle concurred that the water level in relation to the dragline benches could be determined (Tr. 381-82). Furthermore, this relationship is not critical, as some water on the benches was predicted and other components of the TMHP, such as deep burial and lime treatment of the problematic materials, are more important (Tr. 383, 151-53, 1155-56, 1337). The evidence does not amount to a showing that OSM acted arbitrarily.

Mr. Dipretoro and Ms. Smith also questioned the efficacy of the vaguely described "french drain" or "rubble zone" along the base of the eastern highwall as a means of increasing permeability and lowering the water table there (Tr. 708, 822, 883, 903-04, 936-38). But the water table elevation projections were made without consideration of the effects of the "french drain" (Tr. 426-27). The testimony of Mr. Liddle and Mr. Mottet clearly show that it was not a key component in the planning, but that it can be created without specific design or much additional effort in the natural course of mining and that it will increase the permeability and lower the water table to some unknown extent (Tr. 80-81, 302-03, 426-27, 513-15). The fact that its design has not been specified and therefore that its effectiveness cannot be accurately predicted does not render OSM's decision arbitrary under the circumstances.

Fifth, Mr. Dipretoro opined that the Sewanee Conglomerate should be, but cannot be, adequately monitored under the monitoring program (Skyline Ex. 3, p. 11). Mr. Nicholas, once again, provided an effective answer:

On page 11, SOCM's expert states that Skyline cannot adequately test the hypothesis that "...the proposed mine site will not interfere with ground water flow in the aquifers below the Sewanee coal."

Skyline has already tested this hypothesis. As part of the background data collected during the permitting process, Skyline monitored three wells in the Sewanee conglomerate. As shown in the permit application, two wells monitoring the Sewanee conglomerate were located near the northern boundary of Big Brush No. 1. Mining on Big Brush No. 1 had no effect on water levels in the Sewanee conglomerate. In addition, the monitoring data showed that the Sewanee conglomerate was a confined aquifer. In other words, ground water in the Sewanee conglomerate is kept under pressure by impermeable confining layers of rock. On several occasions during background monitoring, ground water was completely purged from wells in the Sewanee conglomerate. Despite the complete dewatering of the wells in the Sewanee conglomerate, water levels in adjacent cluster wells were unaffected, demonstrating that there is no hydraulic connection between the Sewanee conglomerate and overlying units in the vicinity of Big Brush No. 2.

SOCM's expert also contends that "...Skyline will have affected the floor of the mine with numerous exploration boreholes, by blasting and by stress relief by removing the overburden." None of these factors significantly affect the floor of the mine. First, Skyline plugs exploration boreholes. Next, blasts are designed to minimize coal breakage; consequently, fracturing of the pit floor below the coal seam due to

blasting is minimal. Finally, stress relief fracturing occurs due to relief of stress due to the weight of overlying rock.

Fracturing occurs only when the tensile strength of the rock is exceeded. In Skyline's case, the weight of the rock is removed only long enough for material to be moved from one side of the pit to the other. The total weight of rock remaining after mining is the same as before mining. Due to the limited time that rock is removed from the pit floor, stress relief fracturing would be minor if not non-existent. In addition, the pit floor consists of shale, which is more likely to yield in a plastic manner instead of fracturing. Also, the compressive stress applied after the rock is replaced would close any fractures that did open.

Also, if the above causes did result in fracturing through more than 20 feet of underlying rock, background monitoring shows that the potentiometric level of the Sewanee conglomerate is more than 40 feet higher than the pit floor. This means that water would flow upward from the Sewanee conglomerate instead of downward from the pit floor! Upward-flowing ground water from the Sewanee conglomerate has not been observed at either the Big Brush No. 1, Pine Ridge East, or Gladys Fork mine. As presented in the permit, background monitoring results and observations at previously mined sites demonstrate that the proposed mine could be expected to not interfere with ground water flow in the aquifers below the Sewanee coal.

Finally, despite the evidence that the Sewanee coal will not be affected, Skyline is indeed monitoring the Sewanee conglomerate. Well OW-4 is located near a structural low in the pit floor and will be the first location to have a significant accumulation of water in the backfill. This well monitors the most likely location of an impact to the aquifer in the Sewanee Conglomerate.

(Skyline Ex. 36, pp. 12-14; see also Tr. 298-301; Skyline Ex. 20, Vol IV, CHIA, pp. 35-36, 62).

Sixth, additional monitoring points are needed after reclamation, according to Mr. Dipretoro and Ms. Smith, because of the variability in the overburden's net neutralization potential (Skyline Ex. 3, pp. 11-12; Tr. 711-13, 883-85, 896, 908-11, 953-56). They opine that without monitoring points spread throughout the permit area, Skyline and OSM will not be able to detect to the north the chemistry of the water or the effectiveness of the TMHP in addressing varying levels of net neutralization potential (*id.*). Were the monitoring plan able to do so, according to Ms. Smith, the knowledge gained would allow for (1) appropriate adjustments in future mining, and (2) early detection of potential problems that would be useful in developing mitigation strategies, especially if the groundwater discharges elsewhere than to the southeast (Tr. 908-11, 954-56). Ms. Smith concluded that location of the additional monitoring points may be best determined after completion of mining to take advantage of the additional data gathered during mining regarding the overburden chemistry (Tr. 909-10).

Mr. Nicholas effectively responded:

On page 11 of 25, SOCM's expert argues that Skyline has not proposed a sufficient number of monitoring wells to gauge the performance of its reclamation technique in preventing [acid mine drainage]. In January 1997, Skyline met with OSM to determine the appropriate number and location of wells to monitor the backfill water chemistry. Several factors were considered in locating the monitoring wells. Monitoring wells were located to: 1) be near the point where mining started, 2) be near the overburden with the most problematic material, and 3) to be located in the path of ground water flow. First, mining will start in the southeast quadrant of the mine site and proceed to the north. Skyline's wells are located to provide the earliest possible verification of the material handling plan. Well GWM-12 is located in the area where mining will begin and at the point where ground water will exit the mine site to the south. Well GWM-13 and GWM-15 are located in structural lows where ground water will first accumulate. Wells GWM-13, 14, and 15 are located near the most problematic material. These wells were placed immediately down-dip from the overburden holes with the greatest acid-producing potential.

If the plan is successful in dealing with the material with the greatest acid-producing potential, then the plan will be successful on the remainder of the site. If the plan is unsuccessful, OSM will require a change in the material handling plan before mining proceeds further. In any event, as mining progresses the monitoring wells are properly located. The proposed ground and surface water monitoring stations are properly located to make this determination.

(Skyline Ex. 36, p. 14).

Mr. Slone and Mr. Liddle concurred that the southeastern wells are sufficient to show if the TMHP will work in the area of the most problematic materials, and if it does work there, then it will work to the north as well (Tr. 383-85, 1168-70, 1547-48). The water quality there will be known before the water table could rise high enough (*i.e.*, above the virtually impervious Whitwell Shale) to possibly discharge elsewhere and therefore adjustments could be made, if necessary, before such discharge, if any, occurs (Tr. 1547-48). Furthermore, as both Ms. Smith and Mr. Liddle acknowledge, drilling on 625 foot centers during mining will provide even greater detail as to the overburden chemistry from which to make determinations regarding additional monitoring (Tr. 908-911, 1559-60). The dispute as to whether additional monitoring must necessarily be required now, later, or ever to protect the hydrologic balance and insure the suitability of the water for current and approved postmining land uses is a mere difference of opinion.

Seventh, Mr. Dipretoro advocated additional monitoring to document drawdown, recovery and quality effects, if any, on groundwater outside the permit area, referring particularly to effects to the west (Skyline Ex. 3, p. 12). The alleged need for additional monitoring for such purposes is discussed in part III.D.1. of this decision.

Eighth, and finally, Mr. Dipretoro opined that the wells available for comparison of premining data to postmining data is inadequate, especially as wells OW-1 and OW-4 may be

eliminated by mining and OW-1 will be dewatered because of the proximity to mining (Skyline Ex. 3, pp. 12-13; Tr. 696, 1613). He would require additional monitoring sites outside the eastern, western, and northern boundaries (Skyline Ex. 3, pp. 12-13).

As mentioned, the alleged need for additional monitoring to the west and north is addressed in part III.D.1. of this decision. Mr. Nicholas' retort to Mr. Dipretoro's concerns is also relevant:

On page 12 and 13 of 25, SOCM's expert is concerned that mining could eliminate wells OW-1 and OW-4. SOCM's expert also is concerned that well OW-1 will be dewatered as the pits approach. He also claims that well GWM-13 is redundant with well OW-1. Additionally, he states that this redundancy removes the only well in the Newton sandstone available for comparison of monitoring data to pre-mining data.

First, a large body of background data is available for the aquifers in the area. Baseline water quality is well established from this data. In addition to the data collected for this mine site, background data is available for monitoring wells located at nearby mine sites. Water quality data is also available from sampling of drinking water wells in the area and published data is available for aquifers on the Cumberland Plateau. Background water quality is well established and additional monitoring is not necessary to establish baseline conditions.

Despite SOCM's expert's concern, wells OW-1 and OW-4 are clearly located outside the limits of mining. Mining will not eliminate these wells. One of the purposes of well OW-1 is to monitor aquifer dewatering and the effect on Big Brush Creek. SOCM's expert requests that a piezometer nest be installed between the east pit wall and the creek. Yet, the piezometer nest of OW-1 in the Newton sandstone and OW-4 in the Sewanee conglomerate is located between the creek and the east wall of the pit as SOCM's expert requests.

Despite SOCM's expert's claim that wells GWM-13 and OW-1 are redundant, they serve quite different purposes. Well OW-1 monitors drawdown and water quality effects in the Newton sandstone. Well GWM-13 monitors water levels and water quality in the backfill. GWM-13 is part of the network of well that allows Skyline to verify that ground water predictions and that the material handling plan is working as designed. SOCM's expert's claim that the redundancy of OW-1 and GWM-13 removes the only well in the Newton sandstone available for comparison of monitoring data to pre-mining data is wrong and ignores the large amount of background data that is already available.

(Skyline Ex. 36, pp. 15-16).

Mr. Nicholas' retort is accurate, except for the comment that OW-1 and OW-4 will not be eliminated. In fact, it is uncertain whether OW-1 and OW-4 will survive mining, but they will be replaced if they are damaged or destroyed (Tr. 1223-24, 1585).

In sum, SOCM has failed to show that OSM acted arbitrarily in its selection of the number and locations of the monitoring wells. SOCM's own witness, Ms. Smith, conceded that "there is some good logic with the current construction of the plan" and that Mr. Liddle "made a rational decision." (Tr. 912)

#### **E.**

#### **SOCM Failed To Show That OSM Erred by Not Requiring Toxicity Testing or Monitoring of Dissolved Oxygen**

In a prehearing report prepared by Mr. Dipretoro, he asserted that the monitoring plans should have contained testing for dissolved oxygen and toxicity (Tr. 757-58). These tests are not required by regulation (see, e.g., Tr. 1085-86) but SOCM has maintained that they are necessary.

The purpose of dissolved oxygen testing is to monitor for the oxidation reduction potential of the backfill spoil water. Maintaining low oxygen levels is important in preventing material damage to the hydrologic balance outside the permit area through the effects of pyrite oxidation (see Tr. 1157).

Skyline's experts testified that such testing was not warranted because oxygen levels where the pyritic materials are concentrated deep underground at the pit floor are typically minimal and because the testing is unreliable (Tr. 1085, 1165, 1180, 1344-45, 1377-82). At the hearing Mr. Dipretoro agreed with Skyline's expert witnesses that dissolved oxygen testing was not warranted because the testing is not reliable (Tr. 758, 1345, 1377-82).

He maintained, however, that the oxidation reduction potential of the backfill spoil water should still be monitored because while OSM monitored for the byproduct of pyrite oxidation, iron (dissolved and total iron), it did not monitor to detect the two different oxides of iron (ferrous and ferric), and ferrous iron has a much more deleterious effect on streams which requires different remediation techniques than those for high ferric iron concentrations (Tr. 672, 674-76, 723-24, 758, 761-62). He later clarified that such testing would only be necessary if dissolved iron reached a certain level (Tr. 724).

While he asserted that such testing would also assist in determining whether the HRP was working (Tr. 724), he never adequately explained what additional benefit such testing would provide for this purpose that testing for dissolved and total iron does not provide. Skyline's experts testified convincingly that there is no additional benefit and that they had never heard of such testing being required (Tr. 1088, 1345-47, 1381-82). In consideration of this testimony, Mr. Dipretoro backtracked again and declared that testing for speciation of iron was not worth pursuing (Tr. 1638-39).

The primary, if not sole, benefit of the proposed additional testing apparently relates to remediation if a problem arises. The testing for dissolved and total iron is adequate to detect a problem and, if one occurs, the additional testing may be required then, if necessary. SOCM has not

shown that OSM acted arbitrarily in not requiring iron speciation testing.

Mr. Dipretoro recommended toxicity testing of groundwater wells to ensure that groundwater discharges from BB2 will meet in-stream standards as opposed to NPDES effluent limitations because the mine discharge will constitute nearly all of the creek flow for substantial periods after mining is complete (Tr. 676-77, 1639). He opined that monitoring plan requirements to test for heavy metal concentrations would not necessarily be sufficient because some organisms are sensitive to high total dissolved solids regardless of the nature of the material or because a combination of metals may be toxic despite the fact that the metals individually test below toxic concentrations (NPDES water quality standards) (Tr. 764-70).

Mr. Rosso was not aware of toxicity testing ever being required for groundwater (Tr. 1382). Such testing is simply is not designed for groundwater and it is costly (Tr. 1383-84, 1409-11; Skyline Ex. 27, p. 28). In response to Mr. Rosso's opinions, Mr. Dipretoro retracted his advocacy of toxicity testing for groundwater wells but insisted that it should still be performed on a large spoil spring that is predicted to develop from mining BB2 and BB1 (Tr. 1638-39).

While Mr. Rosso conceded that heavy metals testing was not a substitute for toxicity testing and that a combination of metals possibly could be toxic despite the fact that the metals individually test below the NPDES water quality standards, he opined that that possibility was remote at the BB2 mine (Tr. 1401-03, 1409, 1411, 1419). He further opined that toxicity testing was typically not performed at the beginning of a mining operation and that metals testing would identify any problem at BB2 (Tr. 1382, 1409-10; see also Tr. 1087 (Mr. Slone), 1348 (Mr. Nicholas)).

Mr. Slone concurred, explaining that extensive monitoring at the adjacent mine sites has shown which metals are present at detectable limits and which are known to be toxic to aquatic life at elevated levels, and monitoring for those parameters has been incorporated into the NPDES permit (Skyline Ex. 27, pp. 28-29). While toxicity testing at the adjacent mine sites has been employed in response to problems, it is incapable of identifying the specific element(s) which may be causing a toxicity problem (Tr. 1086). Therefore, additional testing was done to determine which metals were causing the problem and testing for those metals is sufficient to detect toxicity problems at BB2 and adjacent mine sites (Tr. 1086-87). Mr. Liddle likewise testified that OSM knows which parameters to monitor from its vast experience regulating mining in the Sewanee coal seam over the past 20 years, including the adjacent mine sites (Tr. 91-92, 94).

Toxicity monitoring tests for problems related not only to metals but also to organic compounds, and such compounds of any significance are not expected to be present at BB2 (Tr. 1418-19). The test is not used at the beginning of an operation because of its costs, inability to actually identify the specific element(s) causing the problem, and the variability of its results (Tr. 1383-84, 1409-11; Skyline Ex. 27, p. 28).

Mr. Dipretoro failed to rebut this testimony. Instead, he acknowledged that he did not know whether the likelihood of a toxicity problem would be remote if metals testing showed compliance with NPDES within-stream standards (Tr. 1676-78). He further acknowledged that he was not aware of any instance in which toxicity testing was required at the beginning of an operation before any problems are detected (Tr. 1678, 1682-83).

As to the likelihood that toxicity testing would be necessary, Mr. Dipretoro did reference the fact that water from a similar mining operation, Gladys Fork, had failed toxicity testing (Tr. 1640). However, this happened before implementation of the TMHP at Gladys Fork, the testing occurred at a spoils basin that was not allowed to discharge, and metals testing also indicated that there was a problem, as the metals were exceeding NPDES standards (Tr. 1744-45).

In sum, SOCM has not shown that OSM acted arbitrarily. The evidence shows that testing for metals and total and dissolved iron is sufficient at the BB2 mine site. At best, SOCM has shown there is a difference of opinion as to whether testing for toxicity is necessary.

#### IV.

#### Remedy

The final issue is what remedy is appropriate, given the failures (1) to identify all of the monitoring sites, (2) to describe how the monitoring data will be used to determine the impacts upon the hydrologic balance, and (3) to require monitoring at least every 3 months. Where, as here, the party challenging the approval of a permit has actively waived or acquiesced in waiver of the review deadlines in 30 U.S.C. § 1264(c) and deficiencies are identified, this office is not restricted automatically to denying the permit in whole or in part and to putting a halt to mining. See Natural Resources Defense Council, Inc. (NRDC) v. OSM, 94 IBLA 269, 283 (1986). Under such circumstances, this office is not bound to the same remedies as OSM in reviewing the permit application but may fashion relief which is appropriate to the case. See id.

SMCRA provides for stringent review deadlines for challenges to OSM's permit decisions and 43 C.F.R. § 4.1365 provides that a request for review shall not stay the effectiveness of an OSM decision pending completion of administrative review. Based upon that review, the permit may be denied or granted in whole or in part. 30 U.S.C. § 1264(c).

The apparent purpose of the stringent review deadlines in SMCRA is to benefit the permit applicant, *i.e.*, to provide it with expeditious resolution of the status of its permit application, such that the permittee will not incur a lengthy delay in its operations. NRDC, 94 IBLA at 282. On the other hand, if the application is disapproved, presumably Congress intended that the applicant can seek speedy review of that denial and possibly take remedial action to secure the permit as soon as possible. Id.

One of the ultimate purposes of SMCRA is to "strike a balance between protection of the environment and agricultural productivity and the Nation's need for coal as an essential source of

energy.” 30 U.S.C. § 1202(f). These purposes should guide the fashioning of a remedy in this case.

The first two deficiencies are technical or “paper” violations that pose no immediate threat of environmental harm. They relate primarily to the public’s ability to participate in monitoring of the mining operation and are easily correctable. The third deficiency involves only a slight deviation from the regulatory requirements of monitoring at least every 3 months and is also easily correctable.

Given these facts as well as the fact that the monitoring plans have been found otherwise adequate herein, the approval of the permit is upheld, except with respect to the aforementioned deficiencies, and mining operations may proceed, subject to the condition that Skyline comply with the regulatory requirements to monitor both groundwater and surface water at least every 3 months. Further, within 30 days of receipt of this decision, Skyline shall (1) submit to OSM an application for a permit revision to correct the deficiencies and (2) provide a copy of the application to SOCM. Within 30 days of receipt of the permit revision application, SOCM may file with OSM written comments or objections to the application. OSM shall evaluate the application in accordance with 30 C.F.R. § 774.13(c) and issue a written decision, within a reasonable time after expiration of the 30-day comment/objection period, either granting, requiring modification of, or denying the application. That decision shall be subject to review in accordance with 30 C.F.R. Part 775.

Harvey C. Sweitzer  
Administrative Law

**EXHIBIT 2**

**IN THE UNITED STATES DISTRICT COURT FOR  
THE SOUTHERN DISTRICT OF WEST VIRGINIA**

**HUNTINGTON DIVISION**

OHIO RIVER VALLEY ENVIRONMENTAL  
COALITION, INC., HOMINY CREEK  
PRESERVATION ASSOCIATION, INC., and  
CITIZENS COAL COUNCIL,

Plaintiffs,

v.

CIVIL ACTION NO. 3:04-0084

GALE A. NORTON,  
Secretary of the Interior,

Defendant.

**MEMORANDUM OPINION AND ORDER**

Plaintiff, Ohio River Valley Environmental Coalition Inc. (OVEC), brought this action to challenge the approval by the Defendant, Secretary of the Interior, of changes in West Virginia's surface mining regulations proposed by the state's Department of Environmental Protection (WVDEP). The parties have submitted cross-motions for summary judgment, and the matter is ripe for decision.

Surface Mining Control and Reclamation Act of 1977 (SMCRA) authorizes the Secretary of Interior, through the Office of Surface Mining (OSM), to review and approve or disapprove state regulatory programs for controlling surface mining operations. 30 U.S.C. § 1211(c)(1). If a state's regulations are approved, that state is given primary jurisdiction and authority over the regulation of surface mining. 30 U.S.C. § 1253. With limited exceptions, a state attains exclusive jurisdiction to regulate surface mining when its regulatory program is approved by the Secretary. West

Virginia's regulatory program was approved by OSM many years ago and has been changed, with OSM's approval, on numerous occasions. In 1988 the state proposed, and OSM approved, regulatory definitions of "cumulative impact" and "cumulative impact area" as part of the regulations dealing with the hydrologic aspects of surface mining. In 2001, the state sought OSM's approval of changes in these regulations. Following public notice and comment periods, the Secretary approved the state's changes in its regulatory program. Plaintiffs seek judicial review of that decision.

Plaintiffs challenge the Secretary's approval for two reasons. First, Plaintiffs assert that the Secretary erred by refusing to reopen the public comment period to receive additional information, including the transcript of a deposition taken of a state regulatory official. Plaintiffs claim this deposition testimony by a WVDEP official should have been considered by the Secretary before deciding whether to approve the state's changes. Next, Plaintiffs argue that the Secretary's approval was arbitrary, capricious, and otherwise inconsistent with federal law. Plaintiffs believe that the amendments were approved by the Secretary despite the absence of a reasoned explanation or rational basis for the changes, rendering her action arbitrary and capricious. Plaintiffs also contend the changes result in a regulatory program which is less effective than federal regulations in meeting the requirements of SMCRA, in violation of 38 U.S.C. § 1253 as implemented by OSM through its regulations. 30 C.F.R. § 5.

This review is conducted pursuant to the Administrative Procedures Act (APA) which authorizes the Court to set aside agency actions, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. 5 U.S.C. § 706. The administrative record was filed with the Court on July 7, 2004.

### **Standard of Review**

Federal administrative agencies are subject to the provisions of the Administrative Procedure Act, which establishes the scope of judicial review of challenged agency actions. The Act instructs a reviewing court to “hold unlawful and set aside agency actions, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A). Because of their expertise in their particular fields, a presumption of validity attaches to an agency’s actions. *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 415 (1971)(overruled on other grounds by *Califano v. Sanders*, 430 U.S. 99, 105 (1977)). As a result, the “ultimate standard of review is a narrow one.” *Id.* at 416. In applying this standard, a reviewing court “must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.” *Id.* The court also considers whether the agency articulated a “rational connection between the facts found and the choice made.” *Burlington Truck Lines v. United States*, 371 U.S. 156, 168 (1962). This connection must be established even where, as here, an agency is rescinding a rule it was not originally required to enact. The Supreme Court has held that “an agency changing its course by rescinding a rule is obligated to supply a reasoned analysis for the change beyond that which may be required when an agency does not act in the first instance.” *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 42 (1983). This reasoned analysis must be provided by the agency itself at the time of the action,

as “courts may not accept appellate counsel’s *post hoc* rationalizations for agency action.” *Id.* at 50. If the court finds the agency has established this rational connection, the action must be upheld even if the court disagrees with the agency’s decision. “A reviewing court may not substitute its judgment for that of the agency.” *Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc.*, 419 U.S. 281, 285 (1974). The final inquiry is whether the agency followed the required procedures. *Overton Park*, 401 U.S. at 417.

The plaintiffs here challenge the Secretary’s approval of two revisions to the West Virginia regulatory program as well as her refusal to reopen the comment period to allow the plaintiffs to supplement the record. The Secretary contends that the standard articulated by the plaintiffs improperly asks the Court to consider whether the amendments render the state program less effective than the federal program. Although the Secretary accurately describes that standard as the one she was to employ in evaluating the proposed amendments, it has some relevance to this Court’s review. The Surface Mining Control and Reclamation Act requires state rules and regulations to be consistent with federal regulations, a requirement defined by the Secretary’s regulations to mean that state laws and regulations can be no less effective than federal regulations. Accordingly, if the Secretary demonstrated a “clear error of judgment” in approving state program amendments that failed to adhere to this requirement, the Court must find her action unlawful. *Overton Park*, 401 U.S. at 416.

### **Comment period**

Section 553 of the APA outlines the procedures agencies must follow in the informal rulemaking process. 5 U.S.C. § 553. Agencies must provide notice of proposed rules or

amendments and “give interested persons an opportunity to participate in the rulemaking through submission of written data, views, or arguments with or without opportunity for oral presentation.”

5 U.S.C. § 553. The APA does not specify how long the comment period must be. A federal regulation governing state program amendments, however, requires a comment period of at least 30 days. 30 C.F.R. § 732.17(h)(3). The initial comment period for the state program amendments in this case was 30 days, which was extended by 15 days. The comment period was later reopened for 15 days and again extended for 15 days.

After this second period expired, the plaintiffs requested that the comment period be reopened to allow submission of a transcript of the deposition of a WVDEP official conducted in another case. The plaintiffs contended that the deposition was critical to the decision-making process because it included information on the state’s purposes for amending the program and the way it would implement the amendments. The agency declined to reopen the comment period. The plaintiffs now argue that the Secretary’s refusal to reopen the comment period was arbitrary and capricious. The Court finds no merit to that argument.

Courts may not impose procedural requirements upon administrative agencies beyond those required by the Constitution or by statute. *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council*, 435 U.S. 519 (1978). “Absent constitutional constraints or extremely compelling circumstances the ‘administrative agencies should be free to fashion their own rules of procedure and methods of inquiry permitting them to discharge their multitudinous duties.’ ” *Id.* at 543 (quoting *FCC v. Schreiber*, 381 U.S. 279, 290 (1965)). The agency here provided ample opportunity for public comment on the proposed changes to the state program. The deposition testimony the plaintiffs want to submit would not alter the basis previously offered by the state,

which was the focus of the comment period. The fact that the federal agency was a party to the action in which the deposition occurred does not require that the comment period be reopened, even if the testimony contradicted the state's asserted basis for amending its program. If the state fails to implement its rules consistent with the approved amendments, the federal agency can take action at that time. For this Court to find that the comment period should have been reopened would be a clear violation of the *Vermont Yankee* holding that procedural requirements for rulemaking are essentially left to the discretion of the agency. *Id.* at 524. Accordingly, the Court cannot conclude that the agency's refusal to reopen the comment period was arbitrary, capricious or an abuse of discretion.

### **Secretary's Approval**

In her published approval of the amendments at issue, the Secretary relied on the state's rationale, including WVDEP's clarification letter of July 1, 2003. The Secretary discussed the absence of counterpart federal regulations, noting there is "no federal requirement" to define cumulative impact or material damage. The amendments delete the definition of cumulative impact and contain a new definition of material damage which the Secretary characterizes a matter of state discretion. SMCRA requires states, before issuing any surface mining permits, to find that a proposed mining operation has been designed to prevent material damage to the hydrologic balance.<sup>1</sup>

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<sup>1</sup> 30 U.S.C. § 1260 requires "...the assessment of the probable cumulative impact of all anticipated mining in the area on the hydrologic balance specified in section 1257(b) of this title has been made by the regulatory authority and the proposed operation thereof has been designed to prevent material damage to hydrologic balance outside permit area." This assessment is referred to as the cumulative hydrologic impact assessment, or CHIA.

(continued...)

In adopting the original federal regulations, the Secretary decided to leave gauging material damage to the states, and no particular standard or measurement is mandated. Instead, the federal regulations defer to the states to decide what constitutes material damage and how to measure it. Other states' programs, like the federal regulations, apparently leave this term undefined and depend on their regulatory agencies to implement this aspect of the CHIA.

Here, WVDEP moved away from the specific, numeric standard of predetermined thresholds and ranges to define and measure material damage. This definition relied on the water quality standards adopted by the state and required by the Clean Water Act.<sup>2</sup> In its place, WVDEP substitutes what it characterizes as a "narrative" standard which defines material damage as "long-term or permanent change" which has "significant adverse impact" on "existing conditions and uses." The state's clarification letter of July 1, 2003, asserts that this new language provides "some objective criteria" in determining that material damage will be minimized or prevented and that the narrative standard will diminish the "unguided discretion" of the permit reviewer. This reasoning is suspect. As Plaintiffs vehemently argue, these terms substitute a subjective, and potentially inconsistent, judgment in place of an objective standard. "Long-term change" and "significant adverse impact" are not defined and cannot surpass "predetermined thresholds and ranges" as

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<sup>1</sup>(...continued)


<sup>2</sup> While on its face consideration of the deleted cumulative impact language may appear severable from the new material damage definition, the two are connected. For instance, the deleted language refers to the possibility that even where an operation complies with effluent standards, material damage may result from co-mingling with discharges from other mining operations if together they exceed water quality standards. The new definition of material damage would ostensibly tolerate this result so long as any "long-term or permanent" change would not have a "significant adverse impact" on other users. The Secretary merely notes that the state will use both water quality limits and the use-based narrative standards but does not otherwise address this aspect of the amendments.

objective criteria. The narrative element of the new standard likely increases subjectivity and unguided discretion in the process. This criticism, that the new definition is vague, was made by OSM when it requested the clarification letter from WVDEP. The Secretary's subsequent approval fails to provide a reasoned analysis to explain how this subjective standard with vague terms can insure that the state program amendments are not less effective than federal regulations. She offers no substantive discussion for how this language may be interpreted or applied by permit reviewers, enforcement officials, mining operators or affected parties. Neither WVDEP nor the Secretary provide a sufficient explanation of how this new definition of material damage would constitute the objective standard claimed by WVDEP.

The Secretary cannot simply rubber-stamp amendments; she must analyze and explain how she determined that proposed amendments will meet federal standards. The Court **FINDS** that the Secretary's approval of these amendments, as no less effective than federal regulations and otherwise consistent with SMCRA, was a clear error of judgment.

The Court **GRANTS** Plaintiffs' Motion for Summary Judgment and **DENIES** Defendant's Motion. The Court **VACATES** the Secretary's approval of the amendments and **REMANDS** the matter to the Secretary for further proceedings consistent with this opinion. The Clerk is directed to forward a copy of this written opinion and order to counsel of record and any unrepresented parties and to publish it on the Court's web site.

ENTER: September 30, 2005

  
\_\_\_\_\_  
ROBERT C. CHAMBERS  
UNITED STATES DISTRICT JUDGE

## CERTIFICATE OF SERVICE

I hereby certify that on the 23<sup>rd</sup> day of June, 2010, I served a true and correct copy of **PETITIONERS' POST-HEARING BRIEF ON GEOLOGY AND HYDROLOGY ISSUES TOGETHER WITH PETITIONERS' RESPONSE TO THE BOARD CONCERNING THE EFFECT OF AIR QUALITY PERMIT PROCEEDINGS** to each of the following persons via e-mail transmission:

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